A Study of 0-14-Year-Old Children's Access to Health Centers in Rural Areas Using a Buffer Model (a Case Study of Villages Based in Kermanshah Province, Iran)

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Keywords: Children, Inequality, Hospital, GIS, Rural Areas

Posted Date: December 11th, 2019

DOI: https://doi.org/10.21203/rs.2.18534/v1

Abstract

Background: Children are among the most vulnerable groups in society, whose health is of prominent significance. Moreover, as a group of clients with special needs in the health care system, they require special attention. Therefore, the present study aimed to investigate the 0-14-year-old children's access to health centers in rural areas of Kermanshah Province, Iran.

Methods: In the present cross-sectional study, both the latest published demographic statistics related to the Population and Housing Census, announced by the Statistical Center of Iran in 2011, and the information about the public and private hospitals in the province, collected by Kermanshah University of Medical Sciences, were used as the basis for the analyses. Additionally, given the importance of spatial nature of the research, GIS was used for data analysis, and a buffer model was also applied.

Results: The results revealed that out of the total population of 0-14-year-old children residing in rural areas within 15,000 and 30,000-Kilometer radii of Kermanshah Province, 87.94% and 75.11% of girls versus 88.15% and 75.38% of boys lacked access to health centers, respectively.

Conclusion: It was found out that the 0-14-year-old children's access to health centers was in poor condition in rural areas of Kermanshah Province, which would endanger the health of this age group.

Background

Providing health for everyone in societies is among the fundamental rights of humans, which is known by the World Health Organization as the main social goal of societies, and its enjoyment is seen as the basis for sustainable development and one of the main pillars of social justice [1, 2]. Hence, one of the goals of policymakers in the health sector in any country is facilitating the access to health services, so that all walks of life can use these services properly [3].

Not to mention, injustice is the presence of deliberate differences between the various social, geographical and economic groups in societies that can be eliminated by proper interventions [4–6]. In this regard, research has it that inequality in the spatial distribution of health care resources has posed serious problems to people's equal access to health care services [7]. The results of studies have shown that what matters in the field of equity in health is the ability of the system to deliver suitable services, and the number of people who want to benefit from these services is the second priority [8].

In this regard, children have always been regarded as a group of clients with special needs in the health care system who require special attention [9]. The results of other studies have also revealed that this age group is among the vulnerable groups who need appropriate services [10]. Likewise, the need for developing appropriate systems to support vulnerable children has been stressed in many other studies [11].

As the results of other studies have shown, children are the most vulnerable age groups in societies, whose health is of the essence. Therefore, their timely access to health centers will maintain and improve the health of societies [12]. On the other hand, the results of other studies indicate that the residents of Kermanshah have not been adequately provided with treatment facilities, and the burden of disease and fertility have also been high in this province 13,24. Not to mention, out of a population of 1,941,715 in Kermanshah, 586,621 reside in rural areas, with 211,498 making up the children's age group.

Methods

Study design

In the present cross-sectional study, the 0-14-year-old children's access to health centers in rural areas of Kermanshah Province was investigated. Furthermore, both the latest published demographic statistics related to the Population and Housing Census, announced by the Statistical Center of Iran in 2011, and the information about the public and private hospitals in the province, collected by Kermanshah University of Medical Sciences, were used as the basis for the analyses.

Geographic Information System (GIS)

Given the importance of spatial nature of the research, GIS was used for data analysis, and a buffer model was also applied. As for modeling, the base map of the province was used, whereby digitization was performed in the GIS environment. Then, boundaries were created for the areas under the coverage of health centers in terms of access to services using Buffer. In addition, the number of populations aged 0-14 years old with and without access was calculated through both Intersect and Symmetrical Difference Instruments (18 & 25). Further, the 0-14-year-old children's access to hospital centers residing in rural areas within 15,000 and 30,000-Kilometer radii of Kermanshah Province was considered in the present study[13, 14].

Results

The results revealed that out of the total population of 0-14-year-old children residing in rural areas within 15,000 and 30,000-Kilometer radii of Kermanshah Province, 87.94% and 75.11% of girls versus 88.15% and 75.38% of boys lacked access to health centers, respectively (Figure 1 and Table 1).

Figure 1 The Areas under the Coverage of Hospital Centers across the Rural Areas of Kermanshah Province Using a Buffer Model

Table 1 The Population of 0-14-Year-Old Children with and without Access to Health Centers in Rural Areas of Kermanshah Province

Gender	Population	15 Km	30 Km
Female	With access	7823	16135
		(12.06)	(24.89)
	Without access	57005	48693
		(87.94)	(75.11)
	Total	64828	64828
Male	With access	8139	16914
		(11.85)	(24.62)
	Without access	60557	51782
		(88.15)	(75.38)
	Total	68696	68696
The total sample population		133524	

Discussion

Health is the most important social goal of societies and its enjoyment is seen as the basis of sustainable development and one of the main pillars of social justice. Moreover, proper policymaking in the health sector in societies will facilitate access to health services. Therefore, the present study aimed to investigate the 0-14-year-old children's access to health centers in rural areas of Kermanshah Province.

The results of the present study indicated that the 0-14-year-old children's access to health centers was in poor condition in rural areas of Kermanshah Province, which was consistent with the results of a study done by Eshrati et al. [15], Rechel et al. [16] and Rechel [17]. As stated in other studies, the inappropriate distribution of health care in developing countries has led to inequities in terms of access to health centers [18]. Moreover, lack of proper access to health centers in children's age group has resulted in various diseases [19, 20]. Therefore, proper access to health care in this age group allows for the prevention of many diseases, an indication of the need for strengthening the system of health care provision towards adequate care at any time and place [21, 22]. On the other hand, the results of other studies have shown that households suffer not only from the burden of diseases but also from the direct financial burdens from treatments [23]. Households, especially the vulnerable strata, face a lot of suffering due to the costs of medical care, which sometimes make them ignore their other needs, thereby reducing their social welfare. In addition, a group of households are reluctant to receive or seek treatment due to financial issues, which also reduces the health of households and societies [24]. Although, in the last few decades, rural health clinics have played an important role in improving the health of rural areas in Iran, including a decline in population, screening, fight against contagious diseases, care for children and mothers, and so on, to name but a few [25, 26]. However, paying attention to villagers' proper access to health centers (hospitals) has always been one of the issues that policymakers and health care planners should consider.

Access has a variety of dimensions, of which only the physical access was addressed. Hence, it is suggested that other dimensions of access be considered in future studies. As pointed out in other studies, Kermanshah is known as one of the deprived provinces in Iran [18, 27, 28] and apart from this, the present study failed to assess the urban residents' access to health centers (hospitals). Therefore, it is

recommended that the inequality among other age groups and sex groups in rural and urban areas of Kermanshah Province be assessed as an index of inequity in access to health services.

Conclusion

The results of the present study demonstrated that the 0-14-year-old children's access to health centers was in poor condition in rural areas of Kermanshah Province, which would endanger the health of this age group. Accordingly, it is necessary to take the necessary measures regarding the access of this age group to health centers since children are in need of special attention, and their timely access to health centers protects and improves their health.

Abbreviations

CAH:Children's Access to Health; RA:Rural Areas; BM:Buffer Model

Declarations

Acknowledgments

The present article was based on the findings of the research project, which was approved by the Center for Social Development and Health Promotion affiliated to Kermanshah University of Medical Sciences in 2018. In the end, our grateful thanks go to Kermanshah University of Medical Sciences for their sponsorship.

Authors' contributions

All authors participated and approved the study design. AZ and AA contributed in designing the study, RT and BM collected the data, and analyzed by AZ and SHS. The final report and article were written by AZ and AZ and All authors read and approved the final manuscript.

Funding

No funding was received in preparation of this study.

Availability of data and materials

Authors report that the data supporting their findings can be publicly shared.

Ethics approval and consent to participate

This study was drawn from a research project (No. 97295) sponsored by the Deputy of Research and Technology at KUMS.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests

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Figures

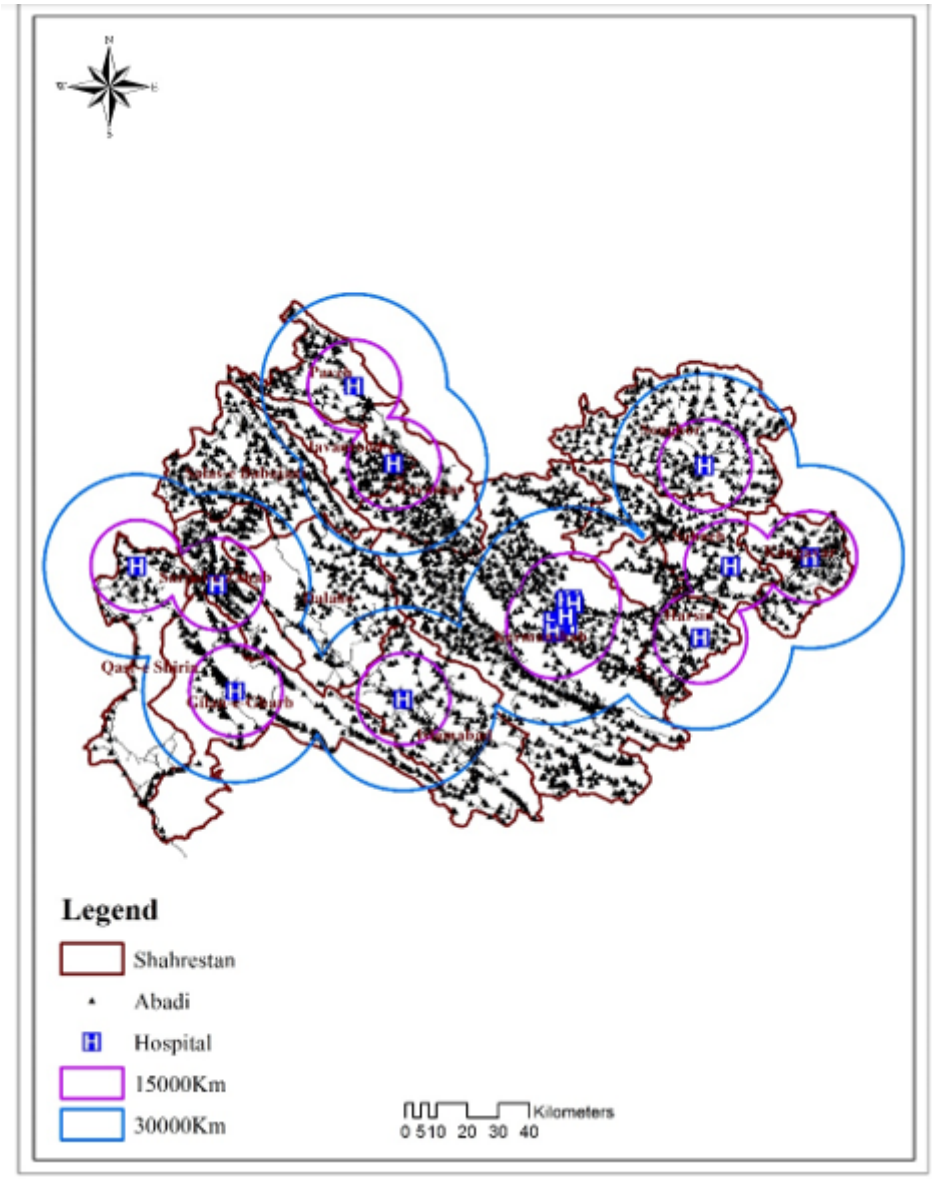

Figure 1

The Areas under the Coverage of Hospital Centers across the Rural Areas of Kermanshah Province Using a Buffer Model