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Rural Disparities in Healthcare: A Mixed-Methods Analysis of Nursing Workload, Access, and Satisfaction in Karnataka, India

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Abstract: This study explores the working conditions, job satisfaction, and perceived needs of rural versus urban nursing professionals in Karnataka, India, focusing on the Gubbi PHC (rural) and Jayanagar PHC (urban). Using a mixed-methods case study design, quantitative data from 19 nurses were analyzed alongside qualitative insights from a focus group. Results showed rural nurses travel significantly farther (mean 7,061.39 km/year vs. 135 km/year urban) and spend more time on home visits (67.74 vs. 6.07 hours/year), yet report similar job satisfaction (Global Average Satisfaction 0.15 rural vs. 0.09 urban). Key challenges included infrastructure deficits, travel burdens, and staffing shortages. Conclusions emphasize the need for tailored health policies that account for rural geographical dispersion, formal recognition of travel time in schedules, and enhanced roles for nurses in chronic care management to improve primary care equity and effectiveness.

Keywords: rural nursing; primary health care; job satisfaction; geographical dispersion; working conditions; health equity

1. Introduction

Social and demographic changes in recent decades have necessitated the implementation of new health policies worldwide. Each country's health model determines access to and the healthcare received by the population [1]. Proper access to and functioning of Primary Care improves the effectiveness and efficiency of the system by reducing healthcare costs, as well as enabling greater prevention and control of diseases through community care and public health. Similarly, there is a reduction in social inequalities in health, resulting in an improvement in the population's health determinants and a more equitable distribution of resources [2]. Many countries, due to their orographic characteristics and high population dispersion, have been forced to research new healthcare models, promoting access to rural health [3]. Clear examples of this trajectory are Australia and Canada, who have demonstrated the importance of good rural healthcare, resulting in a population satisfied with the quality of care received and more versatile health professionals [4]. The increased training of rural nursing professionals leads them to assume

new roles, skills, and abilities to compensate for distances, lack of resources, and population characteristics, thereby improving care and quality of service, with proven improvements in the consumption of socio-health resources and the population's quality of life [5]. To achieve this, there must be a commitment to adequate and competent training that allows for the development, promotion, and autonomy of the professional, acquiring advanced competencies. The Tuma kuru is the most municipalities in the entire national territory, with 371 municipalities. Its Health Area is divided into 22 Rural Basic Zones, with 25.41% of the Individual Health Cards, and 15 Urban Basic Health Zones, with 74.58% [6].

In recent decades, a progressive increase in people over 65 years of age has been observed, who currently constitute 25% of the total population of the Tumakuru District, Karnataka [6]. This figure increases to values of 40% in rural areas. Consequently, the rural population suffers from a greater number of chronic diseases and are therefore high demanders of healthcare and medical care, mostly assumed by Primary Care Nursing, whose rural staff has been reduced in recent years. These changes in population health and longevity, along with the greater isolation of rural areas, result in a higher frequency of scheduled and home visits. This impacts the daily work of professionals, who, despite having a smaller number of patients, must assume greater times and distances for healthcare [7].

Despite the increase in health needs in the rural population, new measures and models of policies in the management of Primary Care have not proven to be effective, as they are governed by the number of inhabitants and not by their needs and socio-cultural characteristics. The main objective of this study is to explore the situation of Rural Nursing through the case study of the Gubbi PHC, Tumakuru Basic Health Zone, Tumakuru District, Karnataka.

The specific objectives are:

- To understand how the working conditions of rural Nursing and urban Nursing are structured and developed.
- To understand the satisfaction that the Nursing professional has with their work experience.
- To compile the perceptions and needs of nursing professionals in the rural setting.

2. Materials and Methods

A case study with a mixed approach was conducted to address the challenges posed. The study was divided into a quantitative and comparative analysis of the working conditions and job satisfaction of professionals from one rural Health Center and one urban Health Center, and the qualitative analysis of the perceptions and needs of the Nursing professionals of a rural Health Center. This triple approach allowed for data triangulation.

The study had the positive report from the Drug Research Ethics Committee of the Tumakuru District, Karnataka and Soria Health Area, the approval of the Primary Care Manager and the Bioethics Commission of the University of Tumakuru, Karnataka.

For the quantitative study, analyzing working conditions and job satisfaction, data from work schedules provided by the Primary Care Management of Tumakuru District, Karnataka and collected through a self-administered questionnaire, based on the validated Font Roja AP questionnaire, which also included questions on socio-demographic data and working conditions, were analyzed. The questionnaire, sent via corporate email, began with an initial Informed Consent question, which explained the research objectives and required acceptance of their participation to continue.

As the study population, the Nursing professionals of the Basic Health Zones/Health Centers of the urban Jayanagar PHC, Bengaluru and rural Gubbi PHC, Tumakuru, both in the Tumakuru District, Karnataka, were taken, as they are prototype centers with an aged, multi-pathological population and accessible to the researcher. Participant recruitment was conducted through non-probabilistic convenience sampling of all Team and Area Nurses involved in urban and rural care in both Centers. The nursing manager served as a link between the researcher and the participants.

The staff of the urban Jayanagar PHC, Bengaluru Basic Health Zone has a total of 13 team nurses and 1 midwife, for a total of 21,333 Individual Health Cards (TSI), where 22% of its population is over 65 years old. Its area covers 1.71 km², comprising a total of 81 streets, squares,

and avenues. On the other hand, the rural Gubbi PHC, Tumakuru Basic Health Zone has 5 team nurses, 1 midwife who comes to the center twice a week, and 2 Area nurses, for a total of 2,444 TSI, where 40% of its population is over 65 years old. Its area covers 864.44 km², bounded by a total of 78 towns, where the Health Center is located in the municipality of Gubbi PHC, Tumakuru. Additionally, there are 49 Local Surgeries where health professionals travel periodically.

The nurses in the sample had to belong to the care team of the Jayanagar PHC, Bengaluru and Gubbi PHC, Tumakuru Basic Health Zone, including Area personnel in case the center provided continuous care. Nurses specializing in obstetrics and gynecology were excluded, as their functions were not the focus of the study.

2.1. Comparative analysis of rural and urban working conditions

For the comparison of working conditions, the following variables were analyzed: sociodemographic and work-related, number and type of appointments made, time and distances traveled for them, and access and infrastructure of the Center. Sociodemographic and work-related variables were collected through the first four parts of the self-administered questionnaire. The percentage frequency distribution of responses to questions about the workplace, age, sex, existence of dependents, time worked, employment status, distance between home and the center, use of a private vehicle, waiting time, patient age, number of daily consultations and home visits, time spent on home visits, and number of local surgeries was analyzed.

For the analysis of the center's access and infrastructure variables, the mean and standard deviation of the responses on a Likert scale [8] from 1 (totally disagree) to 5 (totally agree) were calculated. The data provided by the Primary Care Management of Tumakuru District, Karnataka for the analysis of work schedules allowed for counting the number of appointments made each year by nurses at the health center (10 minutes per appointment) and at home (30 minutes per appointment) during the period 2016-2021. The number of nurses at the Urban Center was set at 14 for appointments at the center (13 nurses and 1 midwife) and at 13 nurses for home appointments, since the midwife performs her functions within the center. For the Rural Center, it was set at 6 nurses for appointments at the center (5 nurses and 1 midwife) and at 5 nurses for home appointments. For calculating the variable of time and distances traveled during 2021, Google Maps was used, selecting the car travel option. For rural nurses, this variable has two components: on the one hand, the distance traveled to the different Local Surgeries, and on the other hand, the distance traveled during home visits. For urban nurses, not having local surgeries, only the time and distance traveled during home visits was calculated. For each rural nurse, first, the weekly and/or monthly routes to the surgeries were established, and the frequency of visits was multiplied by the number of kilometers and time used. For calculating the time and distances traveled for home visits in both Health Centers, the estimated number of home visits made in 2021 and the average distance and time between the reference Health Center and the towns or streets within the Basic Health Zone were used.

2.2. Analysis of job satisfaction

For the analysis of job satisfaction, the validated Font Roja AP questionnaire was used. It consists of 24 items (Likert scale from 1-strongly disagree to 5-strongly agree) grouped into 9 dimensions that determine professional satisfaction. The response rate of the questionnaire was 84.21%. The survey was completed by a total of 19 participants, 6 nurses from the rural Gubbi PHC, Tumakuru Health Center (85.7% of the staff, 5 team and 1 area) and 10 nurses (77% of the staff) from the urban Jayanagar PHC, Bengaluru Health Center. The Global Average Satisfaction (GAS) results from the difference between the items that are part of the dimensions that increase satisfaction (7-17 and 19) minus those that belong to those that decrease it (1-6 and 18, 20-24), then dividing the result by the total 24 items. The GAS allows classifying people as satisfied (>0), indifferent or neutral (=0), or not satisfied (<0).

The analysis of each dimension collected in the questionnaire determined whether the professionals were satisfied (values of 4-5), indifferent (3), or not satisfied (1-2). For this, the data from each Likert scale of the questionnaire were compiled in Excel and the mean and standard deviation were calculated.

2.3. Qualitative analysis of the perceptions and needs of Nursing professionals

To add greater rigor to the study, the consolidated COREQ criteria and the SRQR standards [9] were considered to guide and inform qualitative research. A focus group was formed with 5 Family and Community Nursing professionals (Team) and 1 Area Nurse from the Gubbi PHC, Tumakuru Health Center who consented to participate in the study. It was held on March 9, 2022, in the boardroom of the Center, for 75 minutes. To avoid loss of information, the interviews were audio-recorded and transcribed manually with the participants' permission, always attending to the confidentiality of the information obtained. To preserve the anonymous and confidential nature of the collected data, interviewees were named as N1, N2, N3, N4, E5, and N6. The interview was structured into 4 parts or categories based on the results of the analysis of working conditions and job satisfaction. Once the interviews were completed, the possibility of reviewing a copy of the transcription was offered if the participant so wished. The analysis of the information was developed according to the model of sociological discourse analysis, taking into account the context of production. Subsequently, the Atlas.ti program was used for the analysis of the transcription and content. Within each category (Healthcare offered by the Health Center; Working conditions; Primary Care; and Solutions and improvement proposals), codes or subcategories were determined, and the frequency of each was counted.

3. Results

3.1. Description of the Population

The survey participants were mostly women (81.25%), with an average age between 35 and 54 years and with dependents (87.5%). 62.5% of participants worked in an Urban Health Center and the remaining 37.5% in a rural setting. Most were permanent staff (62.27%), with an average of 13.01 (±14.07) years worked in the rural setting and 3.9 years (±2.29) in the urban setting (Table 6).

3.2. Analysis of Working Conditions (Table 7)

All rural professionals indicated they must have their own private vehicle for their work, unlike 10% of urban professionals. Regarding the distance between home and workplace, all rural professionals stated they travel more than 20 km. In contrast, 90% of urban professionals stated they travel 0 to 10 km. Regarding the number of Local Surgeries in their assigned area, 83.33% of rural professionals indicated having more than 10, while the urban professional reported working in the urban area.

Regarding the time a patient must wait for an appointment with the nursing professional, all rural professionals stated the appointment is obtained on the same day. In contrast, all urban professionals indicated a delay of 1 to 3 days. On the number of daily consultations, 83.33% of rural professionals reported performing 11 to 20. Meanwhile, 80% of urban professionals indicated performing more than 20. 100% of rural professionals and 90% of urban professionals stated that the average age of patients attending consultations is over 61 years. Regarding home visits per week, 66.66% of rural professionals indicated they perform 2 to 4, while 80% of urban professionals indicated less than 2. The time spent on travel and assistance at home is more than 45 minutes for 83.33% of rural professionals and 30 to 45 minutes for 60% of urban professionals.

The analysis of the center's access and infrastructure variables determined that, on average and on a scale where 1 is totally disagree and 5 totally agree, rural professionals scored the center's infrastructure with 2±0.89, the equipment of local surgeries with 2.16±0.75, and that the lack of

resources hinders their care activity with 4.16±0.40. Meanwhile, urban professionals scored the center's infrastructure with 3.4 ±0.69, the consultation resources with 2.7±0.82, and that the lack of resources hinders their care activity with 3.1±0.99.

Rural professionals scored the statement that travel to the Health Center poses inconveniences for patients with 4.16±0.40, and the statement that patients have a car or support network for travel with 2.5±0.83. Conversely, urban professionals scored the inconveniences of travel with 2.8±1.03, and the availability of a car or support network with 3.2 ±1.22. The analysis of schedules determined that the number of appointments per nurse in 2021 was 3,470.5 at the center and 98.61 home appointments for the Jayanagar PHC, Bengaluru Center, and 1,718 appointments at the center and 138.8 home appointments per nurse at the Gubbi PHC, Tumakuru Health Center. Analyzing the number of appointments in 2021 in relation to the number of Individual Health Cards (TSI), it was found that each TSI has 2.33 appointments per year at the urban center while at the rural center it has 4.5 (Table 1).

Table 1: Characteristics of the Rural and Urban Health Center.

Characteristic	Urban enter	Rural Center
Team Nurses	13	5
Individual Health Cards (TSI)	21,333	2,444
% Population > 65 years	22%	40%
Appointments at center/year	48,587	10,308
Home appointments/year	1,282	694
Appointments per TSI	2.33	4.5

Extending this analysis of home appointments to the period 2016-2021 (Figure 2) confirmed that every year the percentage of home appointments is higher in the rural Health Center.

Figure 1: Percentage of home appointments over the years 2016-2021.

The analysis of time and distances traveled on the established routes revealed that during 2021, the 5 Team Nurses of the Gubbi PHC, Tumakuru Health Center traveled a total of **15,602.40** km, meaning each professional invested an average of **52.01 ± 36.35** hours of their annual workday on travel to the different Local Surgeries (Table 2). It must be emphasized that extra travel for on-demand consultations proposed by patients in towns with fewer than 50 inhabitants was not considered, so the time spent is likely greater.

Table 2: Number of Local Surgeries, time and kilometers used per year by Rural Nurses. For calculation, travel to homes was not considered.

Nurse	**Local Surgeries**	**Time/Year (min)**	**Kilometers/Year (km)**
N1	4	2,643.74	2,664.23
N2	14	1,583.88	1,628.80
N3	6	744.66	641.83
N4	13	4,554.64	4,971.49

N5	12	6,075.48	5,498.66
Total (per year)	—	15,602.40	15,405.01
Mean ± SD	—	3,120.48 ± 2,180.69	3,081.00 ± 2,100.66

The analysis of time and distances traveled by Nurses during home visits throughout 2021 determined that each nurse from the Urban Center used **6.07 ± 2.58** hours and traveled **135.00 ± 68.95** km. Meanwhile, each nurse from the Rural Center used **67.74 ± 30.73** hours and traveled **3,980.38 ± 1,976.90** km. (Table 3)

Table 3: Total analysis of time and distances traveled by Nurses in 2021.

Setting	**Component**	Time	Distance
Rural Nursing	Appointments in Local Surgeries	52.01 ± 36.35 h	3,081.00 ± 2,100.66 km
	Home Appointments	67.74 ± 30.73 h	3,980.38 ± 1,976.90 km
	TOTAL	125.07 h	7,061.39 km
Urban Nursing	Home Appointments	6.07 ± 2.58 h	135.00 ± 68.95 km
	TOTAL	6.07 h	135.00 km

3.3. Analysis of Job Satisfaction

The Global Average Satisfaction of the total sample reached a value of 0.09±0.24 for the Urban Primary Care Nursing staff and 0.15±0.26 for the rural staff, revealing that both rural and urban professionals are satisfied with their work (Table 4).

Table 4: Font Roja AP questionnaire dimensions. Global Average Satisfaction in the urban and rural zone.

Dimensions	Urban Mean ± SD	Rural Mean ± SD
Satisfaction	2.53 ±0.17	2.62 ±0.24
Tension	2.73 ±0.24	2.62 ±0.13
Professional Competence	2.13 ±0.53	2.13 ±0.42
Pressure	3.49 ±0.41	2.75 ±0.24
Professional Promotion	3.16 ±0.37	1.5 ±0.04
Relationship with Superiors	3.99 ±0.41	3.8 ±0.14
Relationship with Colleagues	4.0 ±0.00	4.4 ±0.51
Status	2.41 ±0.01	2.00 ±0.41
Work Monotony	2.75 ±0.03	2.0 ±0.21
Global Average	**0.09±0.24**	**0.15±0.26**

The analysis of the 9 dimensions reveals small differences depending on the workplace. The dimensions with the highest degree of satisfaction in both settings are dimension 6 "Interpersonal relationship with superiors" and dimension 7 "Interpersonal relationship with colleagues."

The dimensions with the highest percentage of dissatisfied professionals are dimension 4 "Work pressure" for the urban sample and dimension 5 "Professional promotion" for the rural sample.

3.4. Analysis of Perceptions and Needs

The focus group consisted of a total of 6 professionals, 66.66% of them women, with an average age of 35 to 54 years and with dependents in 83.33% of cases. 66.66% held a permanent position, with an average time worked at the Center of 13.01 ±14.07 years. The focus group analysis revealed 14 codes distributed within the 4 predefined categories. The most mentioned codes were: accessibility, rural nursing, local surgeries, work concern, schedules, work concern, differences between rural and urban settings and geographical dispersion (Table 5).

Table 5. Categorization and coding of the focus group using the Atlas.ti program.

Categories	Codes	Frequency
Healthcare Assistance	Accessibility	12
	Resources or technologies	7
	Infrastructure	5
Working Conditions	Rural Nursing	32
	Local Surgeries	19
	Schedules	14
	Work Concern	12
	Home	6
	Training	6
	Job Satisfaction	5
Primary Care	Rural vs Urban	11
	Patient Needs	6
Solutions and Improvement Proposals	Geographical Dispersion	13
	Viability of Primary Care	7

Next, the content of the conversations around the different categories is described, including representative examples of the most frequent codes

3.5. Healthcare Assistance

The focus group emphasized that the current center does not have adequate infrastructure, as there are not enough rooms or offices for each professional, forcing them to wait for another colleague to vacate the room, resulting in increased patient waiting times [10]. It was highlighted that there is an increasing trend of patients going more to the Health Center to the detriment of the Local Surgeries [11]. Therefore, the Health Center should be a space that allows each professional to carry out their activity without detriment to other professionals or the patients themselves, advocating for an improvement in the material and diagnostic resources of the consultations.
In the interviewees' words, patient accessibility to health services has worsened recently. Not only due to the decreased attendance at local surgeries but also due to the characteristics of the patients themselves, who are older and have a reduced capacity to travel to the reference center.

● **Accessibility.** N2: "On our part, accessibility is 100%, the problem is that the population is older and does not have a car or a bus line. They have to figure out how to come by asking for favors or spending money on a taxi, or wait for us to go to the town."

3.6. Working Conditions

The disparity between medical and nursing staff was a point of discussion, as the center has a total of 8 doctors versus 5 nurses for the same number of patients, despite Nursing assuming greater follow-up of care-dependent chronic conditions.

● **Rural Nursing.** N1: "There should at least be parity. Nursing plays an important role in the rural setting, we are currently playing it, but we could do it much better. "Regarding schedules, there was no common consensus on their structure and areas for improvement. Several interviewees stated they had been given the opportunity to configure their schedule "at will," being able to change hours, routes...

● **Schedules.** E5: "I recently reorganized my schedule, but I still think that 10-minute appointments are very short. Especially when you've been there a short time and don't know the patient." The possibility of recording travel to the villages in the schedule was discussed, as otherwise it is not considered by the administration. The group emphasized that travel constitutes a large percentage of their working hours.

● **Local Surgeries.** N3: "What cannot be is that at 12:00 I have a consultation at the Health Center and at 12:10 in a local surgery that takes me 20 minutes to get to... travel time is work time." It was stated that schedules are not adapted to patients, as configured, the time per consultation currently does not consider a holistic perspective of the patient, allowing action only on the pathology.

● **Schedules.** N6: "They are elderly people who take longer, for example, to undress and who really need and want to talk; many of them are very lonely. I think it's also important to let the patient talk, show them that you care because I believe our job goes beyond a simple check-up, and that can't be done in 10 minutes." Regarding home appointments, all participants agreed that as they appear in the schedules, it does not correspond to reality, as it is only recorded as a 30-minute appointment, a time that can be multiplied by travel and assistance. This means their work list does not truly show the time allocated per patient, making it impossible to attend to more patients.

● **Home.** N3: "No matter how long we take, it's only recorded as a single visit. It may seem like in two hours you haven't done anything, but you've actually spent them with just one patient. "Regarding opinions on rural Nursing, all interviewees agreed that the rural world is satisfying for them. It allows them to carry out their work optimally, with a "friendly" relationship with patients. The smaller number of patients allows them to know them better, being able to enter their more intimate, family world, which translates into the professional having a general view of the patient, considering physical, social, and family aspects that may be related to their health and illness. They advocate for greater autonomy and independence, considering their work fundamental, driven by the aging population and their care needs. They claim to be qualified and confident that rural care supported by Nursing professionals would function much better. As a main work concern, professionals stated that the lack of staff is a great disadvantage, as they cannot reach all patient needs or carry out health education due to dispersion. The pillars that constitute Primary Care are lost: Health Promotion and Disease Prevention.

● **Work Concern.** N6: "We find many elderly patients, with many illnesses, without the possibility to travel, without a social network. Many factors come together that prevent them from accessing the healthcare system when they are the ones who really need it. Due to population size, we could do more prevention, but because of travel, your whole morning is gone; this doesn't happen in urban areas." Not having a permanent position result in numerous changes in work location, which hinders a trusting relationship with the patient, as well as getting to know them in depth, their illness, needs, changes in their condition...

● **Work Concern.** N5: "When you get to know the patients, they transfer you to another center or zone, and this is a problem for both us and the patients, who lose their reference, and when they

want to adapt and open up to their nurse, she has to leave. There should be more stability." Regarding travel to Local Surgeries or homes, professionals see it as an intrinsic part of their work. They conceive that periodically going to the surgeries enables patients to access health services and allows for the promotion of healthy habits and primary prevention.

● **Rural Nursing.** N4: "The degree of patient control should be considered. In well-controlled patients, we could go less frequently, as long as they don't need us sooner, but if they are decompensated patients, you can't go every three months." Travel to homes poses an added difficulty for the professional, due to having more time per visit, as well as transporting all necessary material. They affirm that the higher number of rural home visits is motivated by aging, as well as the lack of transportation means or social support suffered by patients. The interviewees reaffirmed their position regarding the differences between rural and urban healthcare. They valued the work in local surgeries and their resources, travel and geographical dispersion, the patients' own circumstances... facts that do not occur to the same extent in the urban setting.

● **Local Surgeries.** N1: "In the urban setting, work is done almost entirely at the Health Center, and here much of it is done in Local Surgeries or homes, with the lack of resources that entails and the time you invest in traveling."

3.7. Primary Care

For the viability of Primary Care, professionals argue that urgent and revitalizing measures must be taken to continue and enhance the gateway to the healthcare system. They advocate for greater economic resources to allow for the hiring of staff, resources, and infrastructure, enabling them to act and prevent patient pilgrimages to the hospital (as long as it is not necessary).

● **Rural vs. Urban.** N4: "Economically, the health expenditure invested is much lower compared to Specialized Care, without considering that Primary Care is the gateway to the healthcare system and responsible for health promotion and disease prevention." They consider Nursing a relevant figure in the follow-up of chronic patients. They advocate for the role of the Family and Community Specialist Nurse and case manager. Regarding their patients' needs, they believe they should not only resolve their illnesses or provide care but should also consider all the spheres that constitute the person. They understand that the patient sees in them someone with whom to share their concerns, not only about health or illness.

● **Patient Needs.** N2: "We perform a very beautiful function in the town; our presence is an event, we don't just cure, or try to, but we are a means of socialization."

3.8. Solutions and Improvement Proposals

Regarding the approach to high geographical dispersion, opinions are not homogeneous. There is a positive view towards on-demand transport to overcome distances, dispersion, and patients' lack of transportation means. On the other hand, there are professionals who advocate for them to be the ones who travel to the towns, although this would require a larger staff and mobile health units.

● **Viability.** E6: "The organic staff in rural areas must be very well organized to make the most of it, because it cannot be compared to urban areas in terms of patient numbers, but the patients' circumstances must be taken into account."

● **Dispersion.** E5: "Invest in personnel and opt for options like medicalized buses that allow bringing the consultation to the municipalities, equipped with the resources required in a consultation."

4. Discussion

The increase of complex chronic patients in the rural area implies a greater demand for care and healthcare. The present study has shown that the demand for assistance by Nursing is greater in rural than in urban settings, specifically, per Individual Health Card, assistance doubles [12]. This higher demand for assistance must be added to the increase in distances and times spent traveling to Local Surgeries, times that should be fixed in the professional's work schedule as

another consultation to be performed. This would allow for greater recognition by the administration, which currently only counts the number of patients seen, not the time spent on travel.

Similarly, the percentage of home visits is higher in rural areas, largely driven by aging, the absence of support networks, and population transportation [13]. These transfers imply that, in our case, the rural Nurse invests up to eleven times more time during home visits than the urban nurse, although they are allocated the same consultation time, 30 minutes. The time dedicated to home care should be configured as an open appointment, accounting for the total time spent on it. It should be mentioned that the study did not include on-demand appointments proposed by the patient in municipalities with fewer than 50 inhabitants, so the time and distances traveled are likely greater.

Regarding job satisfaction, no major differences were observed between rural and urban professionals. The dimensions with the highest satisfaction in both groups were interpersonal relationships with superiors and colleagues, which agrees with the job satisfaction results of Primary Care physicians in Delhi [14]. However, the dimension with the lowest satisfaction was work-related pressure in the urban setting, and professional promotion in the rural setting, facts that coincide with a study focusing on healthcare workers in Rural Area [15]

The focus group determined that population aging, its dispersion and accessibility, as well as the characteristics and particularities of the region, constitute notable differences compared to urban environments, a fact that should be considered by health managers in health planning. These factors have also been highlighted in other rural areas, as shown in a qualitative study conducted on three valleys of the Navarre Pyrenees, which contributed to identifying factors that interfere in rural healthcare and, thereby, to the implementation of inclusive policies that address the particularities of rural populations and allow their access to health services.

The data and needs obtained in the study are limited. The sample is insufficient for the results to be statistically significant and representative of the target population, rural Nursing, so future studies should analyze other Basic Zones or Health Areas, including the role of other professionals involved in rural healthcare.

The limitation of the results of the analysis of distances traveled during home visits is also highlighted, as an average of time and kilometers of all towns or streets included in the Basic Health Zone of the Center was performed, having only the number of appointments made, but not the place of assistance.

As a future proposal, it is suggested to incorporate the experiences and perceived barriers in accessing healthcare by patients, as it can offer an explanation for the problem from different perspectives, as captured in the work done in West Virginia. A total of 101 participants divided into 13 focus groups determined the following 5 categories of barriers to rural healthcare access: transportation difficulties, limited supply of medical care, lack of quality medical care, social isolation, and financial restrictions. These barriers have also been captured to some extent in the present study.

Finally, the role of Nursing must be highlighted, which should acquire greater relevance, as its work is based on care and meeting needs, responding efficiently, sustainably, and effectively to the situation of chronicity, dependence, and fragility of patients, as outlined in the Strategy for Addressing Chronicity of the National Health System. Several authors advocate for the role of the Advanced Practice Nurse, having verified its efficiency with chronic and complex patients through comprehensive and integrated care following the experience of other countries [16]. Currently, India has Autonomous Communities that have implemented case manager nurse roles or the implementation of Family and Community specialists, who develop advanced competencies in response to new circumstances and population demands with their own programs, which must be regulated, unified, and integrated into common training programs for all Communities.

5. Conclusions

The rural population has changed, and with it, its health needs. The study reflects the situation experienced by rural Nursing professionals in the Gubbi PHC, Tumakuru Basic Health Zone,

Tumakuru District, Karnataka, highlighting the need for recognition and individuality when formulating health policies, adapting to the particularities of each rural environment.

The increase in working times resulting from geographical dispersion must be considered in health planning. Travel must appear expressly in work schedules for their registration as an integrated part of the calculation of assistance time. In this sense, the distance to the point where healthcare is provided must be reflected.

On the other hand, home visits must contemplate travel and assistance time, promoting recognition of the work of rural nursing professionals, since, despite performing a lower number of daily consultations, these can be prolonged over time due to travel and the increased demand for care.

Nursing professionals are satisfied and wish to remain in their jobs, focusing their efforts on meeting the needs and circumstances of their patients. They consider on-demand transport, the use of mobile care units, and the role of the case manager nurse and Family and Community specialists as healthcare management strategies that could improve the quality of rural Primary Care. They believe that the Nursing role can adapt to the changes that have occurred and, due to its particular focus on health, based on holistic care from the analysis of needs, be the ideal vehicle for the assistance and control of chronic pathologies in the rural setting.

Ethical Considerations: The study had the positive report from the Ethics Committee of the University Hospital of Tumakuru, Karnataka, the approval of the Primary Care Manager, and the Ethics Committee of the University of Tumakuru, Karnataka. Prior to signing the Informed Consent, sufficient information about the project, their anonymous participation, and its voluntary nature was provided.

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