

## CONCEPTUALIZATIONS OF "RURAL": CHALLENGES AND IMPLICATIONS FOR NURSING RESEARCH

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### ABSTRACT

To identify the nature of the health of rural people and work towards sustaining, supporting, and improving that health, nurses must understand not only differences between rural and urban, but also differences within and among rural people. Nurses must understand the implications of defining "rural" in different ways and choose appropriate definitions based upon the foci of their research. In this paper, we discuss variations in the conceptualization of "rural," by examining descriptions, dichotomies, typologies and indices. Comprehensive understanding of these conceptualizations will inform nurses in conducting and using rural health research. This knowledge will extend their capacity to identify rural health research questions, to conduct research as insiders living in rural communities, and to use rural health research in providing care and planning programs.

### INTRODUCTION

Interest in rural health is based upon the assumption that rural people reside in rural environments that produce sets of circumstances which are socially, psychologically, geographically, and economically unique, important and identifiable (Martin Matthews, 1988). And that human attitudes, values and behaviors are indicative of that context and predictive in its evolution. To identify the nature of the health of rural people and work towards sustaining, supporting, and improving that health, nurses must understand not only differences between rural and urban, but also differences within and among rural (Humphreys, 1998a). We have hesitated to say rural and urban "what" (areas or regions) for, as nurses, we believe it is more about rural and urban "who" (individuals, families, communities). Size, density and location may define the geographical aspect (Beshiri, Bollman, Clemenson, Mogan, & McDermott, 2000), but nursing is predominantly concerned with the human aspect, which must always be foremost (Rogers, 1970). As such, nursing research must be driven by the human aspect, although an understanding of the geographical characteristics of rural areas is fundamental in any deliberation on rural people.

In this paper, we discuss variations in the conceptualization of "rural," by examining descriptions, dichotomies, typologies and indices. Nurses must understand the implications of defining "rural" in different ways and choose appropriate definitions

based upon the foci of their research. While some researchers differentiate between the terms "rural," a particular kind of geographic milieu, and "rurality," a particular behavior style associated with such areas (Hoggart, 1990), many do not (Humphreys, 1998a; Martin Matthews, 1988; Rourke, 1997). For the purposes of this paper no differentiation in meaning will be made between the two terms.

## VARIATIONS IN THE CONCEPTUALIZATION OF RURAL

Halfacree (1993) declared that search for a single, all-purpose definition of "rural" is neither feasible nor desirable and that the definition should be tailored to the task at hand. Pitblado et al. (1999) agreed, suggesting that a definition that is suitable for human health resource planning may not be appropriate for the assessment of health status. Wootton (1996), editor of the *Canadian Journal of Rural Medicine*, identified the journal's difficulties in defining rural and challenged readers, "If you have a clear idea of what rural means to you, share it with us."

It has become apparent that definitions of "rural" constructed for particular purposes, by specific disciplines, and for specific circumstances are being applied to current situations for which the fit is debatable. With this in mind, knowledge of the variations remains useful in identifying criteria for consideration in the construction or adaptation of definitions of "rural" to meet existing and evolving research needs.

Abstractions of "rural" may be organized into four types: (a) descriptions of "rural," (b) dichotomies of "rural" and "urban," (c) typologies across the geographical gamut or specific to "rural," and (d) indices or indexes of factors weighted to determine degree of "rurality." Distinction between them, however, on occasion becomes blurred. For example, the "Rural and Small Town Canada" definition of "rural" (Mendelson & Bollman, 1998), begins as a description, creates a dichotomy and upon closer scrutiny is intricately linked to a typology.

### *Descriptions*

According to Bealer, Willits & Kuvlesky (1965), the term "rural," historically referred to areas of low population density, small absolute size and relative isolation, involved with primary production, and offering a homogeneous way of life. Although these sociologists identified ecological, occupational, and socio-cultural aspects of the concept "rural," they concluded that description changes over time and more accurate meaning should be explored at an analytic rather than descriptive level. They opined that there is always "some phenomenon toward which the given definition has some presumed explanatory significance", further "the construct can also be used as an independent variable and as a source of explanatory factors" (p. 342).

Hoggart (1990) argued that notions of "rurality" should not guide the selection of sites for empirical investigation as the broad category of "rural" is obfuscatory, whether the aim is description or theoretical evaluation, since intra-rural differences can be enormous and rural-urban similarities can be striking. Martin Matthews (1988) suggested that "real" distinctions that emerge between "rural" and "urban" are a by-product of whether "rurality" is conceptualized in ecological or socio-cultural terms. Miller and Luloff (1981) extensively reviewed the literature that debated the continued existence of

a rural culture and a rural ideology, and firmly declared, “rurality is a viable analytic construct with an empirical reference in reality” (p. 609). Troughton (1999) concluded, “Rural is what people recognize as rural.”

Descriptions of rural from traditional geographical perspectives tend to include three specific criteria: size, density and location (Beshiri et al. 2000; RUPRI, 2001). Size of population refers to the number of people who live within a given area. Density is a measure of population concentration, and location, is a function of distance, often from large urban centers.

Halfacree (1993) outlined three broad approaches to defining rural: descriptive definitions, descriptions based on socio-cultural characteristics, and those founded on locality. He stated that only the last of these is adequate, as it more accurately conceptualizes space, but he concluded that defining the social representation of the space is the more appropriate goal. Further, Halfacree argued, researchers go away and look for statistics and variables that might fit with their intuitive descriptive ideas of what rural is and define rural accordingly. Therefore, he cautioned that descriptive methods only describe rural and do not define it.

### ***Dichotomies***

***Statistics Canada Definitions.*** “It is necessary to define “urban” first because the standard definition of “rural” is essentially everything that is not “urban”” (Beshiri et al. 2000, p. 1). Statistics Canada has created a dichotomy in its definition of “census urban,” “To be defined as urban the area must have a population of 1,000 or more and a density of 400 per square kilometre or more and where the continuous built-up area does not exceed 1 kilometre” (p. 3). Therefore, “census rural” includes “areas with a population of less than 1,000, a population density of less than 400 people per square kilometre, and in areas where continuous built-up areas exceeds 1 kilometre” (p. 3). This definition has been used to generate a rural/urban variable in large national surveys such as the National Population Health Survey (Statistics Canada, 1998).

The Canada Census definitions do not differentiate between rural and urban communities and all small rural communities with populations of at least 1000 people are considered to be urban. Therefore, using 1996 Statistics Canada data (2001), small rural towns such as Viking, Alberta (population 1,081); Langenburg, Saskatchewan (population 1,191); and Deloraine, Manitoba (population 1,041) are grouped with large urban cities such as Calgary, Alberta (population 768,082); Toronto, Ontario (population, 653,734); and Vancouver, British Columbia (population 514,008). Using this definition, the within-group variation will certainly exceed the between-group variation (Coward, McLaughlin, Duncan & Bull, 1994) and findings will say little about “rural” (Hoggart, 1990).

***American Definitions.*** In the United States, two dichotomies are commonly employed: (a) “urban” and “rural” areas; and (b) “metropolitan” and “non-metropolitan” areas.

For the 1990 census, the U.S. Bureau of the Census defined “urban” areas as “comprising all territory, population, and housing units in places of 2,500 or more persons incorporated as cities, villages, boroughs (except in

Alaska and New York), and towns (except in the six New England States, New York, and Wisconsin), but excluding the rural portions of "extended cities," in census designated places of 2,500 or more, or in other territory, incorporated or unincorporated, including in urbanized areas" (RUPRI, 2001, p. 3).

"Rural" was residual, based upon the population left over after urban areas were defined.

For the U.S. Census 2000, "urban" was classified as all territory, population, and housing units located within an urbanized (UA) or and urban cluster (UC), where UA and UC boundaries encompass densely settled territory which consists of core census block groups or blocks that have a population density of at least 1,000 people per square mile and surrounding census blocks that have an overall density of at least 500 people per square mile (U.S. Census Bureau, 2004). (Under certain condition, less densely settled territory may be part of each UA or UC.) "Rural" again consisted of all territory, population and housing units located outside of the UAs and UCs.

Initially, the U. S. Office of Management and Budget (OMB) defined a metropolitan area as "one large population nucleus, together with adjacent communities that have a high degree of economic and social integration with that nucleus" (RUPRI, p. 2). A metropolitan area included (a) at least one central county with either, a place with a population of at least 50,000, or a Census Bureau-defined urbanized area, and a total metropolitan area population of at least 100,000 (75,000 in New England); and (b) one or more outlying counties that have close economic and social relationships with the central county. Outlying counties must have a specified proportion of residents commuting to the central counties and must meet standards regarding metropolitan character such as population density, urban population, and population growth. Again the definition of "non-metropolitan" is residual, based upon the population left over after "metropolitan" is determined.

In June 2003, the OMB released a new version of the definitions for "metropolitan" and "non-metropolitan" in keeping with the Census 2000 changes to definitions for "urban" and "rural." Under the new "core-based statistical area" system, metro areas were defined for all urbanized areas regardless of total area population. In addition, inclusion as an outlying county is based on a single commuting threshold of 25 percent with no metropolitan character requirement. Streamlining the criteria in this manner decreases the population covered by metro areas by approximately two million residents, but actual expansion of metro territory during the last decade added 8 million persons. The net effect reduces the 2000 non-metro population from 55 to 49 million persons (USDA, 2004a, p. 1) The term "non-metropolitan" is the term for "rural" most commonly used in research, analysis and policy making in the United States (RUPRI, 2001). Whether using the earlier or the revised definition, it is recognized that "metropolitan" areas can include counties with a large amount of "rural" population (using the previous "rural" definition) and "non-metropolitan" counties can include a large amount of "urban" population. Another limitation, common to all dichotomies, is that they disregard the diversity (RUPRI, 2001), and gloss over the richness of rural (Weinert & Burman, 1999a) and urban life.

Table 1  
*Standard Geographical Classifications*

| Geographical Unit                                   | Description  |
|---|--|
| Enumeration Area<br>EA<br>(n=49,361)                | The geographic area canvassed by one census representative. It is the smallest standard geographic for which census data are reported. All the territory of Canada is covered by EAs.  |
| Census Subdivision<br>CSD<br>(n=5,984)              | The general term applying to municipalities (as determined by provincial legislation) or their equivalent (such as Indian reserves and unorganized territories). In Newfoundland, Nova Scotia and British Columbia, the term also describes geographic areas that have been created by Statistics Canada in cooperation with the provinces as equivalents for municipalities for the dissemination of statistical data.  |
| Census Consolidated Subdivision<br>CCS<br>(n=2,607) | A grouping of census subdivisions. Generally, the smaller, more urban census subdivisions (towns, villages, etc.) are combined with the surrounding, larger, more rural census subdivisions, in order to create a geographic level between the census subdivision and the census division.   |
| Census Division<br>CD<br>(n=288)                    | The general term applied to areas established by provincial law which are intermediate geographic areas between the municipality (CSD) and the provincial level. Census divisions represent counties, regional districts, regional municipalities and other types of provincial legislated areas. In Newfoundland, Manitoba, Saskatchewan and Alberta, provincial law does not provide for these administrative geographical areas. Therefore, census divisions have been created by Statistics Canada in cooperation with these provinces for the dissemination of statistical data. In the Yukon Territory, the census division is equivalent to the entire territory. |
| Province/Territory<br>PR<br>(n=13)                  | The major political divisions of Canada. From the statistical point of view, they are the basic unit for which data are tabulated and cross-classified. The ten provinces and 3 territories cover the complete country.  |
| Census Metropolitan Area<br>CMA<br>(n=25)           | A very large urban area (the urban core) together with adjacent urban and rural areas (urban and rural fringes) that have a high degree of social and economic integration with the urban core. A CMA has an urban core population of at least 100,000 based on the previous census.   |
| Census Agglomeration<br>CA<br>(n=112)               | A large urban area (urban core) together with adjacent urban and rural areas (urban and rural fringes) that have a high degree of social and economic integration with the urban core. A CA has an urban core population of at least 10,000, based on the previous. Once a CA attains an urban core population of at least 100,000, based on the previous census, it is eligible to become a CMA.  |

Source: Statistics Canada. (1997). *GeoRef users guide: 1996 census – Reference products*. Catalogue no. 92F0085XCB. Ottawa: Author. *Statistics Canada Rural/Urban Codes*

## *Typologies*

Countries have developed typologies or continuums to better define the variations (often in size, density and locality) among primary geographical units. Before entering into a discussion of these typologies, some understanding of the classifications of standard geographical units is in order. For the purposes of this paper, Canadian geographical units are used, but many nations apply similar constructs in their classification systems.

The standard geographical classification operationalized by Statistics Canada (see Table 1) is built upon a primary unit called an enumeration area. Enumeration areas (EA) make up census subdivisions (CSD), which are aggregated into census divisions (CD) and finally provinces (PR). The census consolidated subdivision (CCS) was developed later, to bridge the gap between the CSD and the CD. Newer aggregates include the census metropolitan area (CMA) and the census agglomerate (CA).

Large urban municipalities exert social and economic influence beyond their city limits (Beshiri et al. 2001). The concepts of CMA and CA were created to delimit the extent of the influence of cities and large towns on surrounding municipalities. The primary focus of the Rural/Urban codes was identification of urban influence on nearby municipalities in response to the “overwhelming urbanization of the society” (R. Bollman, personal communication, September 25, 2001).

In applying the Rural/Urban Codes, Statistics Canada uses the primary geographical unit, the EA. Each EA is classified according to the definitions numbered 1 to 5 which include; urban core, urban fringe, rural fringe, urban outside CMAs/CAs, and rural (Table 2).

Table 2  
*Statistics Canada Rural/Urban Codes*

| Geographical Category     | Description  |
|---------------------------|--|
| 1. Urban Core             | Urban areas that form the core of the CMAs/CAs   |
| 2. Urban Fringe           | Urban areas contained within the boundaries of CMAs/CAs, but not contiguous with the Urban Core                  |
| 3. Rural Fringe           | Non-urban areas contained within the boundaries of CMAs/CAs  |
| 4. Urban outside CMAs/CAs | Small towns that are urban (based on the census urban definition) and located outside the boundaries of CMAs/CAs |
| 5. Rural                  | Non-urban areas located outside the boundaries of CMAs/CAs   |

Source: Pitblado et al. (1999). *Assessing rural health: Toward developing health indicators for rural Canada*. Ottawa: Health Canada.

This typology, the foundation of the Rural and Small Town (RST) Canada definition, identifies rural and small town Canada as including “the population living outside the

commuting zones of larger urban centres – specifically outside CMAs and CAs” (Mendelson & Bollman, 1998). Rural/urban codes 1, 2, and 3 are defined as "urban," while 4, and 5 are considered to be "rural." Would a possible alternative be to consider the rural fringe as rural? Therefore groupings would be 1 and 2 as "urban" and 3, 4, and 5 as "rural." Since the launch of the Rural and Small Towns Canada Analysis Bulletin by Statistics Canada in 1998, the definition of Rural and Small Town (RST) Canada has become widely recognized. The initial bulletin further clarified the definition.

A CMA has an urban core of 100,000 or over and includes neighboring municipalities where 50% or more of the workforce commutes into the urban core. A CA has an urban core of 10,000 to 99,999 and includes all neighboring municipalities where 50% or more of the workforce commutes into the urban core (p. 2). "Rural" people, living in municipalities (CSDs) where 50% of the workforce commutes to an urban core, are counted as and considered to be "urban." The factor determining "rurality" is travel for employment, one's own employment, or perhaps that of someone else. This approach underestimates the total Canadian rural population and forges a definition of "rural" that may be useful for some research purposes and not others. This definition has been used by researchers such as Pitblado et al. (1999), who are developing rural health indicators, and Keefe (1999), in her study of informal caregiving in rural and urban Canada.

***Preliminary Typology of Rural Canada.*** The traditional process of defining rural areas with reference to an urban benchmark has tended to give the impression that rural Canada is one residual area largely homogenous in its demography, employment base, income, culture, and social infrastructure (Bollman, 1994). Researchers at Statistics Canada undertook a study to identify, describe and map the diverse features of rural Canada. Census data from 1981 and 1991 were analyzed. Census divisions with similar socio-economic characteristics were clustered and included demographic variables (such as population change and age structure), labor market, income, human capital and infrastructure variables. The result was a preliminary typology of rural Canada comprised of seven categories: (a) primary settlements, (b) urban frontier, (c) rural nirvana, (d) agro-rural, (e) rural enclave, (f) resourced areas, and (g) native north. Description of the categories is provided in Table 3. Bollman (1994) concluded, "such typologies are useful for describing the diversity of rural Canada as it actually is, and as a starting point to developing methodologies for understanding that diversity and its transformation over time" (p. 144).

***Metropolitan Influence Zone (MIZ) Categories.*** The Metropolitan area and census agglomeration Influence Zone (MIZ) is a refinement of the RST definition (Beshiri et al., 2000). This classification demonstrates the influence of CMAs and CAs on surrounding CSDs beyond the CMA/CA areas, or within the RST. Commuting flows are measured, based upon 1991 census place of work data of the employed labor force. The four zones are described in Table 4.

***U.S. Rural – Urban Continuum Codes and Urban Influence Codes.*** Researchers at the United States Department of Agriculture, developed codes to distinguish among counties located along different points of the continuum defined by population distance from metropolitan centers and the regional urban-rural mix (Ehrensaff & Beeman, 1992). Since that time, researchers have synthesized U.S. data to show the systematic variation

Table 3  
*A Preliminary Typology of Rural Canada*

| Geographical Category  | Description  |
|------------------------|--|
| 1. Primary Settlements | Canada's seven largest cities with similar characteristics   |
| 2. Urban Frontier      | CDs contain a larger city or are adjacent to larger cities and have characteristics similar to but less extreme than those of the primary settlements E.g., education levels and number of professional and managerial workers tended to be well above average but lower than the primary settlements  |
| 3. Rural Nirvana       | CDs with significant population increase and migration rates suggest the areas are most attractive to young migrants, second highest rates of employment and the lowest unemployment rates (This category is concentrated in southern Ontario.)  |
| 4. Agro-Rural          | Small populations in dispersed settlements with the population tending to be older; populations stable or declining  |
| 5. Rural Enclave       | Almost exclusively in the Atlantic Provinces with low rates of economic activity for men and women and high rates of unemployment; fishing employment was significant in 1991 in 83% of these CD; the lowest household income and high rates of dependency on social transfer payments.  |
| 6. Resourced Areas     | Some CDs with a high share of population in towns and other CDs with a low share of population in towns (Perhaps because the location and extraction of minerals tends to be timebound and haphazard.); high share of young people and very low proportion of elderly; name chosen as relatively high in natural resources (minerals, petroleum, forests) and relatively high in young human capital resources |
| 7. Native North        | CD clustered on basis of youthful populations, low economic activity rates and low skill levels  |

Source: Bollman, R. (1994). A preliminary typology of rural Canada. In J. Bryden (Ed.), *Towards sustainable rural communities* (pp.141-144). Guelph: University of Guelph.

of social and economic characteristics of local populations across code classes. These codes have been modified and over time two continuums have evolved. Table 5 illustrates adaptations of the codes, resulting in the Rural – Urban Continuum Codes which classify all U.S. counties by degree of urbanization and nearness to a metropolitan area and the Urban Influence Codes which classify counties based upon the size of the Metropolitan Statistical Area (similar to the CMA) or adjacency to MSA and size of largest city. In 2003, the Continuum Codes were adjusted and codes "0" and "1" were combined (USDA, 2004b).

Table 4  
*MIZ Categories*

| Geographical Category | Description  |
|-----------------------|--|
| 1. Strong MIZ         | Includes CSDs with a commuting flow of 30% to 50%  |
| 2. Moderate MIZ       | CSDs with a commuting flow of 5% to 30%  |
| 3. Weak MIZ           | CSDs with a commuting flow of 0% to 5%   |
| 4. No MIZ             | CSDs with no commuting to an urban core or there are less than 40 persons in the resident labour force and the data are suppressed |

Source: Beshiri, R., Bollman, R., Clemenson, H., Mogan, A., & McDermott, A. (2000). *Defining Rural*. Ottawa: Draft paper prepared for Statistics Canada.

One advantage of these classification systems over the rural/urban and non-metropolitan/metropolitan definitions is that for non-metropolitan counties these systems indicate proximity to metropolitan areas. The Rural – Urban Continuum Codes also indicate the size of urban population within a county, while the Urban Influence Codes indicate the presence of a city and the city size (RUPRI, 2001).

Disadvantages accrue as the Rural – Urban Continuum Codes use the previous definitions of rural/urban and non-metropolitan/metropolitan and the Urban Continuum Codes use non-metropolitan/metropolitan, hence, the difficulties with these definitions as stated earlier remain. Further, these classification schemes do not help identify rural portions of metropolitan areas.

**County Typology Codes.** The County Typology Codes were designed to identify groups of U.S. non-metropolitan counties sharing important economic and policy traits (RUPRI, 2001). Based upon primary economic activity, the six non-overlapping types are: farming-dependent, mining-dependent, manufacturing-dependent, government-dependent, services-dependent, and non-specialized. The five overlapping policy types include: retirement-destination, federal lands, commuting, persistent poverty, and transfer-dependent.

This classification system sorts the wide range of economic and social diversity existing in U.S. non-metropolitan counties into a few important themes. Based upon the assumption that knowledge and understanding of different rural economies and their distinctive economic and socio-demographic profiles is useful for rural policymaking, this system makes the identification of rural counties with particular economic and sociological characteristics easier. The limitations of the typology are similar to those of the previous two classification systems.

**Isolated Rural Areas and Frontier Areas.** The concepts "isolated rural areas" and "frontier areas" were designed to address the limitations of the dichotomies and typologies employed in the United States. The definition of "isolated rural areas" was

Table 5  
*Rural – Urban Continuum Codes Compared to Urban Influence Codes*

| Rural – Urban Continuum Codes   | Urban Influence Codes   |
|---|---|
| <u>Metropolitan</u>   | <u>Metropolitan</u>   |
| 0 Central counties of metropolitan areas of 1,000,000 population or more                    |   |
| 1 Fringe counties of metropolitan areas of 1,000,000 population or more                     | 1 Central and fringe counties of metro areas of 1 million population or more                |
| 2 Counties in metropolitan areas of 250,000 to 1,000,000 population                         | 2 Small-Counties in metro areas of fewer than 1 million                                     |
| 3 Counties in metropolitan areas of fewer than 250,000 population                           | <u>Non-metropolitan</u>   |
|   | 3 Adjacent to a large metro area with a city of 10,000 or more                              |
| <u>Non-Metropolitan</u>   |   |
| 4 Urban population of 20,000 or more, adjacent to a metropolitan area                       | 4 Adjacent to a large metro area without a city of at least 10,000                          |
| 5 Urban population of 20,000 or more, not adjacent to a metropolitan area                   | 5 Adjacent to a small metro area with a city of 10,000 or more                              |
| 6 Urban population of 2,500 to 19,999, adjacent to a metropolitan area                      | 6 Adjacent to a small metro area and without a city of at least 10,000                      |
| 7 Urban population of 2,500 to 19,999, not adjacent to a metropolitan area                  | 7 Not adjacent to a metro area and with a city of 10,000 or more                            |
| 8 Completely rural or fewer than 2,500 urban population adjacent to a metropolitan area     | 8 Not adjacent to a metro area and with a city of 2,500 to 9,999 population                 |
| 9 Completely rural or fewer than 2,500 urban population not adjacent to a metropolitan area | 9 Not adjacent to a metro area and with no city or a city with a population less than 2,500 |

Source: Adapted from Rural Policy Research Institute (2001).

developed in response to a need to expand rural health outreach grant eligibility to include parts of Large Metropolitan Counties (counties with at least 1,225 mi<sup>2</sup>) that do not have easy geographical access to central areas. Isolated rural areas are defined as rural areas (census tracts) in which less than 15% of the population commuted to work in the central area (operationally, a city of 50,000 or more persons plus the surrounding densely settled suburbs) or rural areas (census tracts) in which more than 15% of the population commuted to work in the central area, if 45 percent of the labour force commuted 30 minutes or more to work (p. 7, RUPRI, 2001). The term "frontier area" was developed to describe a county or census tract with extremely low population density, usually fewer than 6 people per square mile and characterized by isolation due to distance from central places, poor access to market areas, and people's isolation from each other in large geographic areas (RUPRI, 2001). Geographic, cultural and human resource problems make the provision of human services, in general and health services in particular, extremely formidable in these areas. Some organizations, such as the Frontier

Mental Health Services Network, define a "frontier area" as having a population density of 7 people or less per square mile. This type of definition helps identify non-metropolitan or rural counties and census tracts with special policy and service needs.

**OECD Definitions.** In 1994, the Organization of Economic Co-operation and Development created internationally comparative definitions of "rural regions" and "rural communities" (Beshiri et al. 2000). A "predominantly rural region" was defined as having more than 50% of the population living in rural communities, with a "rural community" being defined as having a population density less than 150 persons per square kilometre. To implement this definition in Canada, CDs were used to represent "regions" and CCSs were used to represent "communities."

Researchers working with Statistics Canada have suggested that these rural regions can be divided into three types: (a) those adjacent to metropolitan centres, (b) those not adjacent to metropolitan centres, and (c) rural northern regions (Beshiri et al., 2000). Two urban regions can also be derived in relation to this definition: (a) an "intermediate region" defined as "where between 15% and 50% of its population lives in rural communities", and (b) "predominantly urban" regions "where less than 15% of the population resides in rural communities" (p. 7).

Pitblado et al. (1999) in their work to develop health indicators for rural Canada, have compared the population of rural Canadians using the OECD typology of "predominantly rural," "intermediate" and "predominantly urban" and the Statistics Canada Rural – Urban Codes. Using the nonCMA/nonCA population of Canada (codes 4 and 5, ie. the RST definition), 22.2% of the Canadian population is defined as "rural." Using the OECD definition of "predominantly rural" 31.5% of the Canadian population is considered to be "rural."

In Canada, the OECD typology is applied at a CCS level, and has been found useful for labour market analysis to the extent that these regions are proxies for functional labour markets. Other issues, however, may require smaller geographical units for policy analysis or program development (Beshiri et al. 2000)

### **Indices**

Researchers and policy analysts have long recognized that focus on defining the nebulous concept of "rural" should extend to measuring differences in the degree of "rurality." With this goal in mind, Cloke (1977) developed and applied one of the first "rurality" indices or indexes.

**Index of Rurality for England and Wales.** This index incorporated a total of sixteen variables. The index began with three traditional variables to measure -- 1. low density, 2. high involvement in rural primary industries, and 3. a consequent low level of commuting to employment outside the area.

Several demographic variables were added including three related to age structure. The design of the three variables assumed that a non-urban or rural trend is indicated by depopulation and a disproportionate number of elderly people. Therefore, an age structure biased towards the 15-45 age group indicated an urban trend. The three variables measured -- 4. the proportion of the population over the age of 65, 5. the proportion of men present in the 15-45 age group, and 6. the proportion of women in the 15-45 age group. A measure of 7. population change, three migration variables (8. in

migration, 9. out migration, 10. in/out migration balance), 11. an indicator of the level of household amenities, two occupancy rates (12. % population at 1 1/2 room, and 13. households per dwelling), and three distance variables (14. distance from nearest urban centre of 50,000 population, 15. distance from nearest centre of 100,000, and 16. distance from nearest centre of 200,000) completed the index.

In later years, Cloke and Edwards (1986) re-applied the index. They concluded that rural researchers should seek to avoid the treatment of "rurality" as a static phenomenon. And suggested that although they had demonstrated the measurement of "rurality" between two censal data points, it is equally important to recognize the nature of "rurality" itself changes over time.

**General Practice Rurality Index for Canada.** According to Leduc (1997), an instrument for measuring the "rurality" of the general practice of medicine in Canada is needed to provide a standard of comparison that can be used by researchers, educators, administrators, and rural physicians. He developed such an index, incorporating six variables: remoteness from a basic referral centre, remoteness from an advanced referral centre, drawing population, number of general practitioners, number of specialists, and presence of an acute care hospital. Variables were weighted and summed on a 100-point scale.

This index was the precursor of a national framework on "rurality" based upon the feedback from rural Canadian physicians to the Canadian Medical Association Survey on Rural Medical Practices in Canada (Buske, Yager, Adams, Marcus, & Lefebvre, 1999). Physicians were asked, "What defines a community as "rural"? The top ten ranked factors at the national level were used to generate four primary factors and six secondary factors. The primary factors included: high level of on-call responsibilities, long distance to a secondary referral centre, lack of specialist services, and insufficient general practitioners/family practitioners. The secondary factors were: long distance to a tertiary referral centre, absence of equipment such as x-rays and laboratory services, difficulty in obtaining locums, no ambulance service, inability to provide services such as obstetrics or general surgery, and a sparsely populated catchment population.

The question was asked and physicians provided a list of "what" defines a rural community, only the tenth indicator mentions the "who." Perhaps a different list would have been generated if they were asked about the "who" or if they identified the community as the people before focusing on the place.

**Montana State University Rurality Index.** Researchers have proposed examining "rural" health along a continuum incorporating population, economic, occupational, and access factors (Weinert & Burman, 1999). The Montana State Rurality Index is such an example, employing a continuum of "rurality" based on access and population variables. This index uses only two variables: county population and distance to emergency care. The validity of the index does not appear to be compromised by its parsimony (Weinert & Boik, 1995). This index suggests a starting point in exploring rural issues related to access to health care. Depending upon the focus of the research, however, other sociocultural or economic characteristics may need to be incorporated (Weinert & Burman, 1999).

## CHALLENGES AND IMPLICATIONS FOR NURSING RESEARCH

In light of the myriad definitions of "rural," Halfacree's declaration becomes even more salient. The definition of "rural" and, we suggest, the method for determining it, should be "tailored to the task at hand" (Halfacree, 1993, p. 34). Weinert and Burman (1994) reviewed the nursing literature and identified four major types of rural health research: (a) studies exploring health and health-related phenomena in a rural area, (b) studies specifically examining rural and urban differences, (c) research focused on a concept such as chronic illness, where rurality was one of several demographic variables, and (d) studies of typical rural populations such as farmers, fishers, migrants or First Nations. This rural research was of widely differing sophistication and ranged from highly structured studies of large databases to individual case studies and anecdotal reports.

Nurses are conducting and participating in rural health research. Their knowledge of the implications of using different definitions of "rural" is key to ensuring quality and effectiveness in their research activities. Nurses are using rural health research in program development. Their ability to analyze and interpret that research is pivotal in planning service delivery to improve and promote the health and well-being of rural people.

### *Rural Health Research in Canada*

Canada's study of rural health lags behind other nations, who have considerable rural populations and substantial rural geography. The United States has recently developed a detailed analysis of urban/rural patterns of health in America for use in targeting efforts of prevention and health care access (Health and Human Services News, September 10, 2001). This chartbook provides detailed analysis of population characteristics, health risk factors, health status indicators, and health care measures for residents of counties grouped by five urbanization levels. It also examines patterns by region of the country. The chartbook is available on line and tables at the web site are being updated as new data becomes available (Centres for Disease Control and Prevention, 2001).

Australian research on rural health has a long tradition, resulting in the landmark publication of *Health in Rural and Remote Australia* (Australian Institute of Health and Welfare, 1998). This research became possible, after the development of a National Rural Health Strategy, called for the development of national and local indicators for rural and remote health (Humphreys, 1998b; 1999). The wisdom of the people of Australia is apparent in their development of "national" and "local" indicators. As yet, Canada has not developed such agreed sets of indicators. We are just coming to recognize that we need a national rural health research strategy (Pong et al. 1999; Watanabee & Casebeer, 1999). In 2001 a rural health research forum sponsored by the Canadian Institutes of Health Research (CIHR) was held in St. John's, Newfoundland. Forty researchers, practitioners, and policymakers interested in rural health were invited, to develop a set of strategies as a foundation to advance rural health research and knowledge translation in Canada (Lyons, 2001a). Four key research priorities permeated conversations: (a) health status of rural people and communities, (b) determinants and consequences of rural health, (c) rural

health service in the broadest context, and (d) human and other resources to undertake rural health research (Lyons, 2001b).

This exciting initiative will generate new directions in rural health research. Those in attendance recognized the importance of an agreed upon national "rurality" index for health care planning and resource allocation. Regional and local indexes are also required. Participants further acknowledged that qualitative studies (including participatory action research) of the health and health-related issues of rural people, are essential to complement quantitative research, for policy development and program planning purposes. Taking up the challenge from this initiative and other forums on rural health, Mitura and Bollman (2003) have provided the first analyses of the health of rural Canadians in a recent Statistics Canada bulletin. Nurse in Canada are challenged to engage in rural health research and contribute to future understanding of the health status and health behaviors of rural Canadians.

### *Conclusions*

Defining rural is a complex and multifaceted process that changes, according to the purpose for which the definition is being designed. The definition changes further dependent upon the people and the process involved in its creation. Nurses recognize that in rural health research, any definition of rural must focus first on "rural" people, then on the context of their "rurality." Nurses provide the bulk of primary care in rural settings and have an understanding of the issues of health status and health behaviors of rural people. From their rural practice, nurses come to understand the rural people and the rural communities whom they serve. This knowledge extends their capacity to identify rural health research questions, to conduct research as insiders living in rural communities, and to use rural health research in providing care and planning programs.

Nurses recognize the commonality and diversity of rural people and rural places. This knowledge must be incorporated into their research and their practice. Weinert and Burman (1999) used the sampler quilt to depict their understanding of rural communities—Each square is made up of many pieces. Across squares, there are pieces that are alike and some that are unique. Each square is a work of art unto itself, but only when the squares are stitched together can the overall pattern of the quilt be fully appreciated and understood (p.76).

This same metaphor could be used to describe rural health research, for only when a considerable number and variety of studies are completed and placed together as a whole, will an understanding of the health of rural people be apparent. Nurses have a pivotal role to play in conducting and using rural health research. To ensure that the needs of rural dwellers are understood, rural health science is advanced, rural health programs are effective, and rural health policy is appropriate, rural nurses must contribute to, and advocate for, both the individual squares and the overall pattern of the sampler quilt.

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