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Why doctors choose small towns: A developmental model of rural physician recruitment and retention[☆]

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ABSTRACT

Shortages of health care professionals have plagued rural areas of the USA for more than a century. Programs to alleviate them have met with limited success. These programs generally focus on factors that affect recruitment and retention, with the supposition that poor recruitment drives most shortages. The strongest known influence on rural physician recruitment is a “rural upbringing,” but little is known about how this childhood experience promotes a return to rural areas, or how non-rural physicians choose rural practice without such an upbringing. Less is known about how rural upbringing affects retention. Through twenty-two in-depth, semi-structured interviews with both rural- and urban-raised physicians in northeastern California and northwestern Nevada, this study investigates practice location choice over the life course, describing a progression of events and experiences important to rural practice choice and retention in both groups.

Study results suggest that rural exposure via education, recreation, or upbringing facilitates future rural practice through four major pathways. Desires for *familiarity*, *sense of place*, *community involvement*, and *self-actualization* were the major motivations for initial and continuing small-town residence choice. A history of strong community or geographic ties, either urban or rural, also encouraged initial rural practice. Finally, prior resilience under adverse circumstances was predictive of continued retention in the face of adversity. Physicians' decisions to stay or leave exhibited a cost-benefit pattern once their basic needs were met. These results support a focus on recruitment of both rural-raised and community-oriented applicants to medical school, residency, and rural practice. Local mentorship and “place-specific education” can support the integration of new rural physicians by promoting self-actualization, community integration, sense of place, and resilience. Health policy efforts to improve the physician workforce must address these complexities in order to support the variety of physicians who choose and remain in rural practice.

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Introduction

Reports since the 1920s have lamented the declining availability of doctors in rural and remote areas of the United States, and little has

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changed despite considerable attention to the problem (Cutchin, 1997a; Owen, Hayden, & Bowman, 2005; Rabinowitz, Diamond, Hojat, & Hazelwood, 1999a). Today, twenty percent of the U.S. population lives in rural areas, generally defined as counties with no metro area larger than 50,000 residents, but only nine percent of physicians practice there (Ricketts, 1999). Sixty-seven percent of rural areas are considered Health Professions Shortage Areas (HPSAs), and the most remote areas continue to be the most underserved (COGME, 1998; Hart, Salsberg, Phillips, & Lishner, 2002).

Unfortunately, challenges with rural recruitment and retention are projected to continue (Hart et al., 2002; Ricketts, 1999). The proportion of physicians in rural practice has fallen steadily over the past thirty years, and fewer than four percent of recent U.S.

medical school graduates plan to practice in small towns (Rabinowitz, Diamond, Markham, & Rabinowitz, 2005). In the meantime, specialization in the medical workforce has increased while fewer specialists choose to practice in rural areas (AAMC, 2004). How to recruit and retain rural physicians and other health professionals therefore remains a crucial focus of rural health policy and research (Geyman, Hart, Norris, Coombs, & Lishner, 2000; Hart et al., 2002; Hegney, McCarthy, Rogers-Clark, & Gorman, 2002).

Explanations and mitigation

Explanations for the rural physician shortage range from a lack of attention to rural concerns at a domestic policy level to physician preference for specialties with highly controllable schedules. Disparities in physician recruitment and retention have been the focus of most studies because they can be influenced more easily than can the economic or political circumstances that also contribute to physician shortages, such as falling Medicare reimbursement rates or the decline of small-scale agriculture (COGME, 1998, Lehmann, Dielman, & Martineau, 2008). In the rural health literature, recruitment has been shown to be the driving force behind most shortages, though retention is thought to hold more promise in resolving them because the factors associated with it are more modifiable. Call schedules can be changed, upbringing cannot (Pathman, Konrad, & Agnew, 1994; Pathman, Konrad, Dann, & Koch, 2004; Rabinowitz, Diamond, Markham, & Hazelwood, 1999b) (Table 1). Nevertheless, effective mitigation programs address both recruitment and retention as well as community and regional development (Porterfield et al., 2003).

Recruitment and rural upbringing

Of all of the factors involved in effective recruitment, “rural upbringing,” defined as spending all of one’s childhood in a rural location, more than ten years in a rural location, or calling a rural place one’s childhood home, is the strongest predictor of rural practice choice (Geyman et al., 2000; Laven & Wilkinson, 2003). However, despite the attention paid to its importance, there is little understanding of the *process* by which upbringing influences later affinity for rural settings. Furthermore, this finding does not explain the fact that 74% of rural physicians were *not* raised in rural settings; presumably, some other experience or “component” of a rural upbringing influenced their decision about where to practice (Owen et al., 2005; Pathman et al., 1994).

Scholars in other disciplines have identified characteristics associated with rurality that are thought to influence behavior and life trajectories (Beggs, Haines, & Hurlbert, 1996; Bell, 1992; Ching & Creed, 1997; Kahn, 1997; Williams, 1975), but these literatures have

generally not been applied to questions of rural health and physician shortages. Specifically, scholars suggest that despite the fact that people’s experiences of “rural” are widely variable (Christman, 2004; Woods, 2005), there are fundamental cultural and physical differences between urban and rural spaces which are remarkably *consistent* and *persistent* through space and time. Geographically, rural places are defined by their low population and material resource density (Christman, 2004) while psychologists and educators find that rural people interact more with their physical environment and rely more on natural cycles and resources (Lockhart, 1999; Woods, 2005).

Meanwhile, ethnographic studies in rural communities have consistently described characteristics of a distinct “rural culture,” including a focus on community (Slama, 2004) and a valuation of practicality and resilience (Philo, Parr, & Burns, 2003). These studies suggest that rural residents see themselves as pragmatic, community-minded, and able to endure challenges because of their prior experience with hardship. Whether or not these differences are always present, they create functional dichotomies between outsiders and insiders (Bell, 1992; Pugh, 2004; Halfacree, 1994) and can create differences in practice and residence choice between rural and urban-raised physicians.

Recruitment and familiarity

Importantly, not only do rural-raised students seek out rural environments in general, they also tend to practice in communities in the general size range of their hometown with statistically significant regularity (Costa, Schrop, McCord, & Gillanders, 2006; Matsumoto, Inoue, & Kajii, 2008). Qualitative studies also show that physicians describe an explicit motivation practice in a community similar to the one where they were raised (Kazanjan & Pagliccia, 1996; Tolhurst, 2006). These findings are consistent with twin studies that show that residential environment as a child accounts for more than 50% of the variance in residence choice for younger adults (Whitfield, Zhu, Heath, & Martin, 2006).

Recruitment and other experience

In addition to prior rural residence and familiarity, other experiences, including a *rural residency track*, a *rural medical school track*, a history of *community service*, *plans to practice family medicine* upon entry into medical school, and *loan repayment program participation* are also independently predictive of future rural practice (Table 1). Past studies have suggested that these factors are mainly a manifestation of an existing inclination toward rural practice (with the exception of loan repayment program participation), but are sometimes important in identifying or influencing

Table 1
Factors affecting recruitment and retention of rural physicians in previous studies.

Factors influencing recruitment	Factors influencing retention
<ul style="list-style-type: none"> • Rural upbringing (Daniels et al., 2007; Hegney et al., 2002; Rabinowitz et al., 1999a; Tolhurst, 2006). • Rural residency experience (Daniels et al., 2007; Pathman, Steiner, Jones, & Konrad, 1999). • Rural-focused medical school track (Rabinowitz et al., 2005; Talley, 1990). • Community service orientation (Daniels et al., 2007; Madison, 1994; Tolhurst, 2006) • Plans to practice family medicine upon medical school matriculation (Madison, 1994; Tolhurst, 2006). • Loan repayment program participation (Rabinowitz et al., 2001). 	<ul style="list-style-type: none"> • Personality and practice compatibility (Cutchin et al., 1994; Hart et al., 2002). • Reasonable workload and call schedule (Cutchin, 1997a; Pathman et al., 2004; Humphreys et al., 2002). • Financial sustainability of practice (Pan, Dunkin, Muus, Harris, & Geller, 1995; Rabinowitz et al., 1999a). • Owning one’s own practice (Pathman et al., 2004) • Employment opportunities for spouse (Han and Humphreys, 2006; Mitka, 2001). • Parenting a minor-aged child (Pathman et al., 2004) • Sociocultural integration (Cutchin, 1997a; Han & Humphreys, 2006; Hegney et al., 2002; Pan et al., 1995).

specialty choice in undecided students (Rabinowitz, Diamond, Markham, & Paynter, 2001). It is not known how the initial “rural inclination” is developed or fostered over time.

Retention

Though rural physician retention is generally assumed to be poor, four of five relevant studies show that it is actually comparable to urban settings, and is also equivalent between more and less underserved rural areas (Luman, Zewifler, & Grumbach, 2007; Pathman et al., 2004; Philo et al., 2003). However, keeping physicians in rural areas remains important because they are so difficult to replace. Efforts are now being made to retain doctors in rural areas *even longer* than in urban settings to help offset poor recruitment (Rabinowitz et al., 2005).

Studies have consistently shown that practice-related and lifestyle factors, such as compatibility with the medical community or parenting a minor-aged child, play much more of a role in retention than “pre-determined” factors such as upbringing, training, and community service orientation (Mayo & Mathews, 2006; Rabinowitz et al., 1999b). In other words, physicians are generally willing to practice in seemingly “undesirable” or unfamiliar communities once they become settled; those who experience intolerable and unmodifiable circumstances emigrate at approximately the same rate as physicians in urban settings. These more flexible factors that do influence retention include *workload, financial sustainability of practice, compatibility with the local medical community, owning one's own practice* and “*sociocultural integration*,” the extent to which a physician becomes involved in their new community (Cutchin, 1997a; Pathman et al., 2004) (Table 1).

Integration and retention

Another important component of retention is a smooth initial transition to a new cultural and practice environment. Surveys and qualitative studies show that interventions supportive of initial integration, such as informational orientations, introduction to important community contacts (Han & Humphreys, 2006), and “nurturing” of physicians by recruiters, other physicians, and community members (Felix, Shepherd, & Stewart, 2003), can improve integration and retention.

Cutchin (1997a) developed a model of physician integration/retention that describes an obligatory and ongoing process in which doctors attempt to maintain their *security, freedom and identity* within a particular community and occupational context. While striving to develop these foundations, physicians interact with their “places” in a way that integrates them, barring intolerable conditions that force them to leave (Cutchin, 1997a, 1997b). This study is one of the first to describe integration/retention as a process, moving beyond the identification of isolated “influences.” It also emphasizes the importance of the physician's environment, which many studies tend to downplay, instead emphasizing physicians' personal characteristics. However, the applicability of this model is limited by a lack of description of the psychological processes physicians use to integrate, making the design of interventions difficult.

Two concepts that can potentially fill this gap are *sense of place* and *community participation*. Sense of place refers to the affective bond that people form with places, and has also been termed “place attachment,” place identity, and rootedness (Heidegger, 1962; Low & Altman, 1992; Massey, 1994; Tuan, 1977). “Place” in this context commonly refers to the multidimensional nature of a given location, including both the “natural” and “social” aspects of that site (Seamon, 1980; Tuan, 1977).

Chawla (1992), Sobel (1996), and Hay (1998) have described the development of a sense of place as a process that mirrors the formation of relationships to places in childhood and moves from *empathy* for the familiar, to *exploration* of the home range – particularly natural places such as woods and lakes, to *social action*, where people move their focus back into town and become more involved in the community and the application of their knowledge.

The development of community engagement and participation is less well-theorized than sense of place, but is highly predictive of rural recruitment (Daniels, VanLeit, Skipper, Sanders, & Rhyne, 2007; Madison, 1994; Tolhurst, 2006) and retention (Carrier, Carrier, & Bisset, 2005; Pathman, Steiner, Williams, & Riggins, 1998). Furthermore, as discussed above, community engagement is one of the hallmarks of rural-urban differences and facilitates successful adjustment to rural living.

Self-actualization

In addition to striving for community and place integration, physicians are motivated by a desire to live happy and satisfying lives. This idea is succinctly expressed in Abraham Maslow's hierarchy of needs, which suggests that people sequentially work to satisfy increasingly complex “longings,” moving from basic physiological needs to a need for morality, creativity, and truth (Maslow, 1954) (Fig. 1).

While Maslow's work has been extensively criticized for being excessively individualistic (Geller, 1982), nativistic (Neher, 1991), and not reflective of the multiple motivations and strategies that people employ in the pursuit of fulfillment, it is also widely used and intuitively understandable in fields ranging from business to education (Keil, 1999). Therefore, despite limitations, Maslow's hierarchy serves as an effective jumping off point for this study because it provides an applicable framework for administrators, policy makers and program directors to understand physicians' motivations.

Summary of prior research

A “rural upbringing” is known to be the most important predictive factor of rural physician recruitment as well as a catalyst of retention, but little is known about the means by which this occurs. An interdisciplinary review of the literature implicates a variety of factors in this process, including *sense of place, community participation, self-actualization, and familiarity*, though little is known about how these components act over time. In this study, we used qualitative methods to examine and describe the process by which both urban and rural-raised physicians choose, settle into, and stay in rural settings. From our findings, we

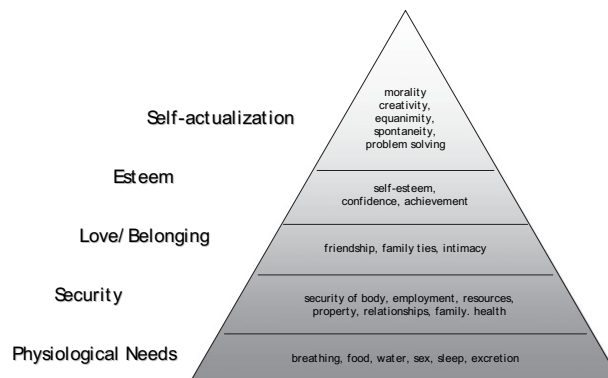


Fig. 1. Maslow's Hierarchy of Needs.

developed a descriptive model, informed by both existing literature and our data.

Methods

A semi-structured interview guide and demographic questionnaire were administered to twenty-two committed primary care physicians in rural northeastern California and northwestern Nevada during June and July of 2006 and 2007. This area is historically characterized by a low population density and difficulty recruiting and retaining physicians due to its remoteness (Cromartie & Wardell, 1999; Larson et al., 2003). Qualitative methods were chosen because of the descriptive, exploratory, nature of the research question and our need to modify the study's focus depending on initial results.

Recruitment

Following approval of the study protocol by the UC Berkeley Institutional Review Board, an initial cohort of physicians was recruited from a December 2005 meeting of the Valley Emergency Physicians' Medical Group, a professional corporation that staffs rural clinics and emergency rooms throughout the American West. Because many of these physicians were initially recruited for temporary positions, they represent a more "marginal" and geographically diverse subset of the rural physician workforce than has been investigated by other studies (e.g. Backer, McIlvain, Paulman, & Ramaekers, 2006) and therefore can provide more information on the range of reasons physicians choose rural practice. Five of twenty-two invited subjects met inclusion criteria and chose to participate, providing an initial response rate of 22%. Snowball sampling was used to increase the size and diversity of the final sample, which consisted of 5 initial recruits and 17 subsequent contacts. The lead investigator traveled to physicians' communities to conduct interviews at homes or workplaces.

Eligibility criteria for the study included active primary care practice in a rural community and full-time residence in that community. Primary care specialties were defined to include family medicine, internal medicine, geriatrics, pediatrics, and emergency medicine (Sam, 1999). While emergency physicians are commonly excluded from definitions of primary care in urban areas, their scope of practice in rural settings falls much closer to the practice of a family physician, and many rural emergency rooms are actually staffed by family physicians (Williams, Ehrlich, & Prescott, 2001). Inclusion criteria also included residence in the community of practice or its outskirts for five years or more, which represents "longer than average" retention time based on several recent studies, which show and average retention of 5 years (Pathman et al., 2004; Pathman, Konrad, & Ricketts, 1992; Ricketts & Randolph, 2007). "Rural" was defined using the California Office of Statewide Planning and Development (OSHPD) definition of Rural Medical Service Study Areas (MSSAs). Rural MSSAs have population densities of less than 250 persons per square mile, and contain no census-defined place with population exceeding of 50,000 within the area.

Data collection

Following written consent, interviews were digitally recorded and transcribed. Field notes and demographic questionnaires were compiled to facilitate triangulation and comparison with other interview samples. Interview length averaged 50 minutes, with a range of 20–80 minutes (SD = 18 min).

Initial interview domains and related questions were developed through an extensive review of the literature on sense of place in psychology, geography, philosophy, education, and sociology.

Domains included *place and upbringing, place and training, recruitment, community integration, current community and patient profile, activities/retention/satisfaction, self-image and community role, and future plans and projections.*

Data analysis

Thematic codes were generated from literature on place and community integration and the repetition of key words and phrases or common plot structures in the transcripts (Cresswell, 1998; Lockhart, 1999). To facilitate consistency and rigor, a comprehensive code book with definitions of each code was developed and reviewed on multiple occasions by the investigator and a second coder trained in qualitative research methodology and familiar with rural medical practice. Relationships between codes were also noted and diagrammed in order to describe the process by which integration and retention unfolded over time. A third qualitative researcher reviewed all final coding categories and analyses. Following initial coding and concept development, the domains of *adversity, resilience* and *self-actualization* were added to capture the range of subject responses. The final model was presented to and discussed individually with four of the research subjects and several community members and hospital administrators in order to evaluate its descriptive validity, and presented to a 30-member forum of interested community members in the study area. No significant changes were made to the model as a result of these reviews.

The lead investigator also resided in the study area, engaging in extensive dialogue with physicians and community members about the emerging results of the study. This prolonged engagement in the field was also used to ensure the validity of these categories and relationships (Cresswell & Miller, 2000). Pseudonyms were substituted for all personal and place names and other potentially identifying data.

Results

The sample

Interviewees were generally representative of rural primary care physicians in terms of their gender, medical education, and specialty (Hart et al., 2002, Wheat, Higginbotham, Yu, & Leeper, 2005). All were white, married, and middle aged, with a mean age of 54.9 years and a range of 38–74 years. Seventy-seven percent of interviewees were male, 82% had children, and 50% grew up in a rural area. On average, interviewees had 2.46 children, with an average age of 20.9 years.

All physicians completed medical school and a primary care residency, with 55% (11) board certified in family medicine, 27% (6) in emergency medicine, 14% (3) in internal medicine, and 9% (2) in pediatrics. Sixty-eight percent attended a publicly funded medical school, with just one of the twenty-two (5%) attending osteopathic school. Eighty percent of physicians worked full time (more than 32 hours per week). Nine percent (2) owned private solo practices; 23% (5) were part-owners in private small group practice (2–7 physicians), 27% (6) were in part-owners in private large group practice (≥ 8 physicians), 36% (8) were in public small group practice (including Rural Health Centers and small publicly funded rural hospitals), and 5% (1) were in public large group practice. Their self-reported median gross income was \$187,000 per year from all sources, with one physician declining to report income. Mean retention time in their current position was 20.7 years, with a range of 5–44 years (Table 2).

The census-designated places (towns or cities) inhabited by study participants were impoverished and bordered on remote

Table 2
Selected demographic characteristics of physician participants.

Age (mean, years)	54.9
Sex	
Male	17
Female	5
Ethnicity	
White/Caucasian	22
Other	0
Upbringing	
Rural	11
Urban	11
Relationship status	
Married	22
Other	0
Mean number of children	2.46
Mean age of children	20.9
Employment status	
Full time	17
Part time	5
Income (gross, before taxes) ^a	
> \$200,000	9
\$150,000–199,999	4
\$125,000–\$149,999	3
\$100,000–\$124,999	2
\$85,000–\$99,999	1
\$70,000–\$84,999	2
Medical school	
Public	15
Private	6
Osteopathic	1
Specialty	
Family Practice	11
Emergency Medicine	6
Internal Medicine	3
Pediatrics	2
Practice type (Large = ≥8 physicians)	
Private Solo	2
Private Small Group	5
Private Large Group	6
Public Small Group	8
Public Large Group	1

^a One physician declined to report income.

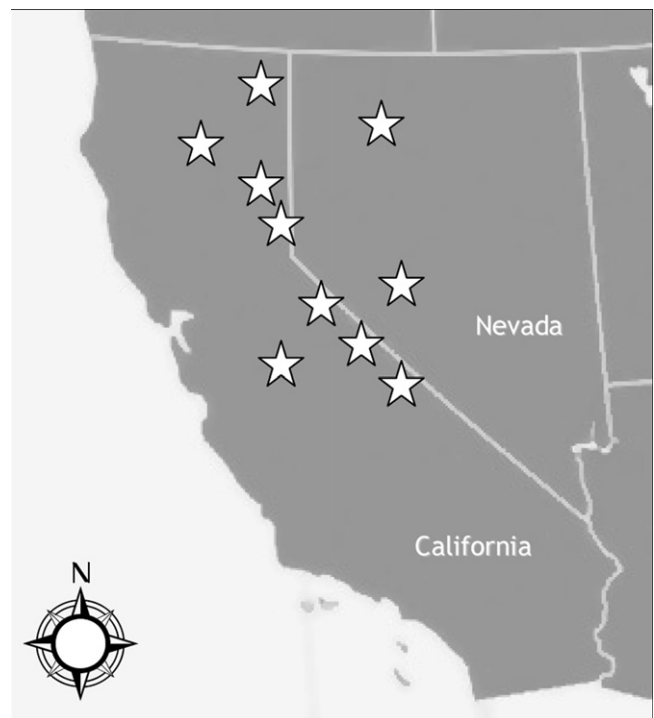


Fig. 2. General locations of study sites.

(Fig. 2). Based on 2000 U.S. Census Data, they had an average population of 3026 residents, and were located in counties with an average population density of 9.8 people/mile². Half of the communities in the sample qualified as “frontier,” while the other half fell on the small end of “rural” based on the MSSA definition. Mean household income in the physician’s communities was \$30,251, 73% of the national average, and an average of 14% of families had incomes below the federal poverty line. Mean age of community residents was 41.3 years.

Retention: pathways and processes

This study began as an investigation of the effect of exposure to rural environments on rural recruitment and retention. However, it became apparent that “sense of place” did not capture the breadth of reasons why physicians entered and chose to remain in rural practice. Therefore, the range of domains was expanded to better describe the sample. The resulting model suggests that there are four main pathways to successful and fulfilling rural practice – familiarity, community, sense of place, and self-actualization – with respondents fairly evenly split between the four (Fig. 3).

Familiarity

Seven of twenty-two respondents stated that they chose rural practice primarily because they wanted to live in a familiar natural or social environment. This setting gave them a sense of trust, comfort, and ease, and required far less cognitive and social effort than attempting to integrate into a new type of community.

I tried to live in the big city because I grew up in a small town... so I wanted to experience the big city, but it just never stuck. I just migrated back up here. I grew up in small towns, I was familiar with small towns. I wasn't familiar, used to, or accustomed to all the things that BigCity offered, so I didn't miss any of that stuff [and]...by coming up here, I was gaining a lot. I mean, I like small towns. I think it was just comfort level. -Tom, 49

Meanwhile, for others, familiarity grew out of rural recreational or job experience as a child or young adult.

Well, I worked in Big Timber for a couple of summers on a dude ranch, which was out at the end of the road. And then I went to college in LittleCity and had access to ten zillion rural areas there. So I just like it out here. -Mattie, 58

Furthermore, four participants chose medical schools in rural or “rural-feeling” environments because they felt “more comfortable” in that setting, 4 sought out 1-month rural experiences during medical school that helped solidify their interest in rural practice, 4 did a rural rotation during their residency, and 2 attended a residency program focused on care of rural and underserved populations. Notably, only 1 of 22 stated that a rural experience during their undergraduate or post-graduate medical education was the primary reason for their choice of rural practice.

In all cases, these interviewees expressed a sense of “at-home-ness” in places that reminded them of their childhood residence or holiday retreat, and that familiarity was a major factor in their decision about where to live and practice.

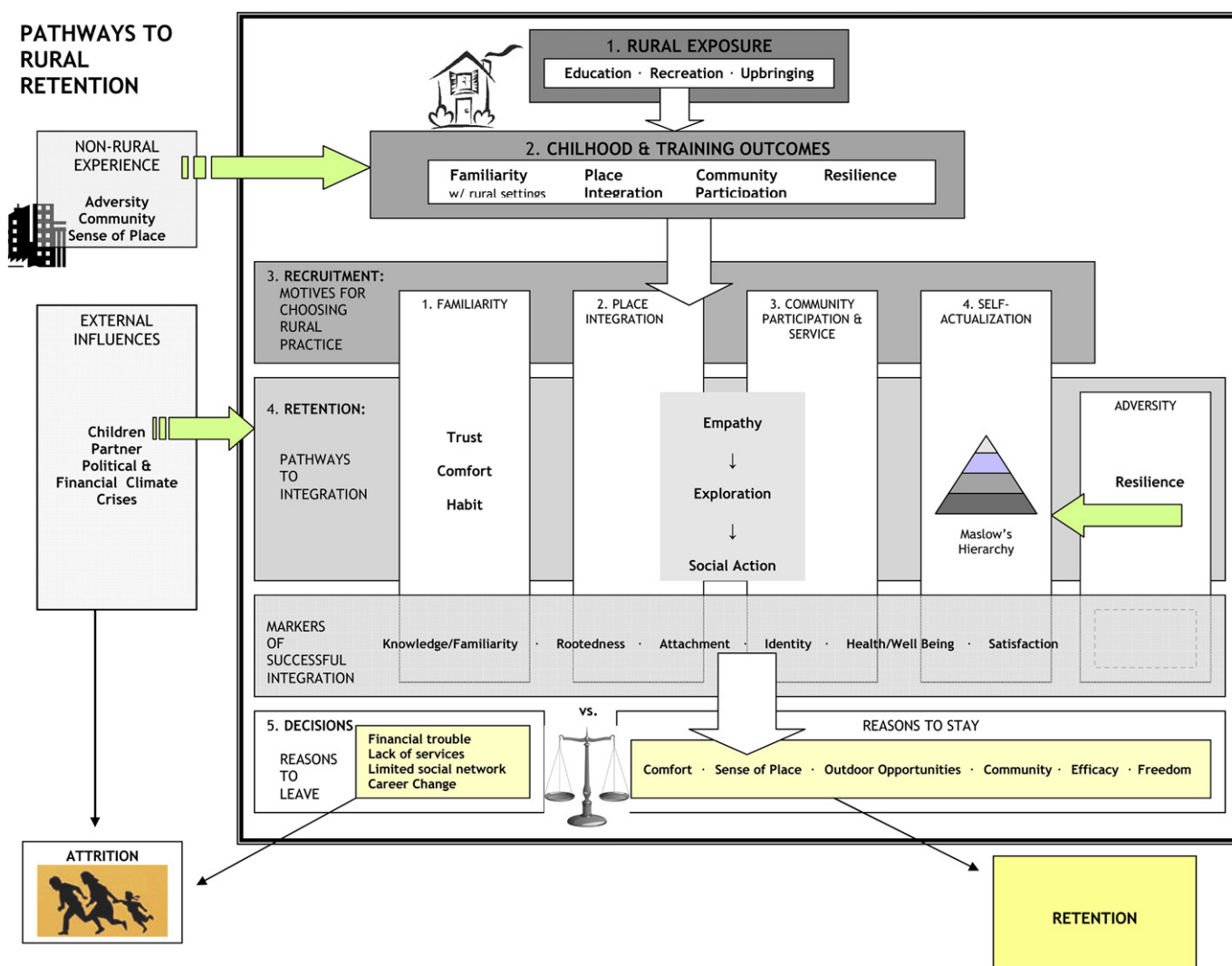


Fig. 3. An integrated conceptual understanding of how rural exposure and upbringing improve rural retention rates among practicing physicians.

Community

Nine of twenty-two respondents cited community-related reasons as one of their primary motivations for choosing rural practice, including a desire to work in a community with a large underserved population, or a desire for continuity and close relationships with patients and staff. They frequently participated in community service and described intimate relationships with staff, patients, and other community members. They also minimized the costs that such a tight-knit community can entail, such as a lack of privacy and increased professional demands.

If I had to use a particular word...that has meaning in this context it would be connectiveness [i.e., connectedness]. You're so connected with people. I know so many people involved in so many different things and they're a phone call away or a block down the road...that connectiveness provides a great deal of meaning in what I would call a very fragmented world. -Lynne, 42

The foundation for this pathway was, in all but one case, a previous experience with tight-knit community (either rural or urban) that eased their adjustment to their current situation.

Sense of place

Six of twenty-two respondents said their decision to practice in a rural area was primarily motivated by a desire to live in a place

where they felt connected to and inspired by the natural environment, and satisfied with opportunities for outdoor recreation and exploration. Furthermore, even for physicians who did not cite "place" as one of their principal reasons for choosing rural practice, it became a major source of satisfaction over the course of their career.

I mean, the reason I designed this building...with my office facing west to the mountains, was so that I can go out... for fresh air, so that when I get all wound up...I just open the door and look where I live, and I realize that 99% of the U.S. comes here on vacation, and I live here, and that's worth a lot...I'm always going to earn less than my peers. Always. But the view out my back window is worth about \$15,000 to me. Brings me about up to par. -Aiden, 40

Physicians' descriptions of their place integration process were consistent with a progression from empathy to exploration to social action, with each stage preceded by the previous one.

We started [out] just driving up to the mountains and through the hills.. and then we started taking dirt roads off into the rocks, and then doing some hiking... and then going to the lake, and then taking different roads...it was kind of a gradual thing...until we learned the lay of the land... and then we started branching out from what we knew. -Sam, 73

The outcome of this process was a continually created “sense of place” that provided a strong foundation for continued residence in their community. Well-integrated physicians described local rootedness, belonging, and knowledge of their local surroundings, as well as a sense of health and well-being when spending time there.

Self-actualization

Finally, seven respondents chose rural practice primarily because they felt that rural areas were places where they could lead happy and successful personal and professional lives; rural environments provided a supportive and nurturing environment for their journey toward self-actualization. Personally, these physicians described rural places as good locations to raise children, settle down, and make a life for themselves. Professionally, they felt that their practices provided sufficient variety, autonomy, and opportunities to “make a difference.”

I get to be a doctor here. And that's probably the biggest thing...I'm happy. I'm doing well. We're saving people's lives out here because if we weren't here there would be nobody. There is no health care, so we're providing care where there is none. And to put it bluntly, I'm well compensated...and I can make my own schedule. -Billy, 38

Physicians perceived their communities as places capable of meeting the range of their needs, beginning with basic physiological needs and moving through security and emotional needs toward a sense of creativity, meaning and purpose. While this theme overlapped somewhat with the idea of “community,” physicians who cited “self-actualization” discussed the breadth of ways in which their needs were satisfied by their community.

Adversity and resilience

External circumstances affected physicians' sense of familiarity, community attachment, sense of place, and self-actualization. Those practicing in harsh political or financial environments fared less well and were less satisfied than those with more support. The challenges they faced included a lack of basic services, financial constraints, feelings of alienation and isolation, a lack of professional opportunities, limited resources for children and partners, and the personal and professional challenges that accompanied geographic isolation.

Physicians used multiple strategies to deal with these challenges, including humor, flexibility, maintenance of an internal locus of control, and effective use of technology. Most were also able to identify specific experiences during their childhood or training that taught them the skills and attitudes they employed on a daily basis.

“[One of my points of reference] is having been [a physician] in a refugee camp in Vietnam...I had a 120 bed hospital. I was there for two years. Half the time I was the only physician there. And we had 300 outpatients a day, 120 inpatients. Ten deaths a day. So you can imagine what kind of a stressful situation that would be. You have to do whatever you can and you triage and you learn to recognize what you can do and what you can't do.” -Arthur, 62

When faced with adversity again, these physicians drew on their experience to respond to challenges in ways that fostered their growth instead of destroying their resolve.

Deciding to stay

In response to questions about what would *force* them to leave rural practice, the majority of physicians envisioned a few “intolerable” circumstances. These triggers or “thresholds” included the destruction of their home, the failure of their hospital, or their partner's refusal to stay. Beyond this threshold, physicians weighed

the costs and benefits of remaining in their communities and made constant reassessments about whether or not to stay (For further description of these factors, please see Fig. 3).

Discussion

The process by which physicians choose to stay in rural practice is complex and variable. Nevertheless, it is clear that rural exposure, through recreation, education, long-term residence, or a combination of these, provides an early foundation of familiarity, resilience, and community/place integration that drives interest in post-graduate rural practice. Thus, our findings are consistent with many other studies that have identified “rural upbringing” as the most influential factor in rural practice choice (e.g. Daniels et al., 2007; Hegney et al., 2002; Rabinowitz et al., 1999b). However, they also support the impact of shorter-term experiences at summer camps, family farms, rural service projects, and other sites. By helping prepare students for rural life and social norms, these experiences ease the transition to post-graduate rural practice, a result also discussed previously (Kazanjian & Pagliccia, 1996; Pathman et al., 1998).

Once primed for rural living through early experience and later reinforcement, physicians are drawn to rural practice for a combination of four main reasons: *familiarity*, *community involvement*, *place integration*, or *self-actualization*. Though motivations tended to interact and change over time, all subjects identified one or two of these motivations as their principal reasons for rural practice choice.

The importance of the first pathway, familiarity, seems self-evident: past residence type is highly predictive of future residence type (Costa et al., 2006). However, it is important to reiterate that familiarity with rural areas based on experiences *other than* past residence also opened doors to rural practice; some physicians endeavored to create a new life for themselves in a location that was familiar but not exactly like their original “home.” This influential exposure tended to occur in childhood/adolescence rather than later in their education.

The second pathway, an inclination toward community participation and service, has been discussed in several studies on recruitment (Daniels et al., 2007; Tolhurst, 2006), but not on retention. Our results suggest that continued community participation protects against attrition by facilitating the accumulation of social capital and the promotion of resilience. However, we did not investigate how the habit and motivation toward community participation is created, aside from identifying the importance of previous experience. Studies focused on community service may provide a clearer understanding of how students learn to “get involved” and may offer guidelines for recruiting community-oriented medical school applicants (Clary & Snyder, 2002).

Regarding place integration, Sobel's model of sense of place development was consistent with the stepwise progression of connection to place we observed in our interviewees (Sobel, 1996). Its simplicity provides a comprehensible model for recruiters, administrators, and others to foster place integration among new recruits. It also supports the importance of place-based education programs that foster a sense of place among new recruits (Sharpe, Greaney, Lee, & Royce, 2000; Sobel, 2004).

The concepts of self-actualization emerged during transcript analysis. Several aspects of this pathway's components (workload, satisfaction, and diversity of workload) have been cited as motivations for rural practice (Cutchin, 1997a; Pathman et al., 2004), but only anthropologists have previously described self-actualization as a part of the rural integration process (Lockhart, 1999 p. 168). This finding strongly supports the need for comprehensive mentorship and professional development programs for new and struggling rural physicians, and should be a policy and funding priority.

Spousal/partner influences were very important in physicians' decisions, consistent with numerous other studies (Kazanjian & Pagliccia, 1996; Mayo & Mathews, 2006). Integration must be viewed through the lens of the entire family, and partners must be included in any effort to facilitate community integration, connection to place, and resourcefulness. Changes in hospital policy, workload, and other professional concerns must also be considered from the partner's point of view.

Notably, while several interviewees participated in rural undergraduate, medical school, or residency programs/rotations, only one felt that this experience was the *primary* reason he eventually chose rural practice, a finding consistent with previous studies (Rabinowitz et al., 2001).

It is also important to note that no clear themes emerged regarding the differences between the motivations of urban-raised vs. rural-raised physicians. While more work is needed to clarify this important distinction, our data suggest that the initial pathway for was similar for both groups, and consisted of early residential or recreational exposure to rural environments followed by later reinforcement through rural education, recreation, or work.

In addition to providing a model for rural physician retention, these findings also have important application in the explanation of current rural physician shortages. Medical schools now matriculate fewer rural-raised students and more wealthy and urban-raised applicants; 51.5% of students admitted in 2004 had parents who earned \$100,000 or more, up from 23.5% in 1997 (Bowman, 2005). These students are statistically less likely to have encountered adversity (Hatch, 2005) or to have engaged in community participation (Bowman, 2007), and are therefore less likely to choose rural practice for these reasons, in addition to the fact that it is unfamiliar and often stigmatized by their medical school instructors (COGME, 1998; Talley, 1990). By recruiting and supporting more rural, place-oriented and community-focused physicians and medical students, important strides can be made toward meeting the needs of rural and underserved communities and providing a better quality of life for those who call rural places home.

Limitations

Physicians' understandings of the connections between their upbringing and training are subject to recall bias and manipulation. The models proposed here are also limited by the difficulty of articulating internal psychological processes, which are inherently subjective and variable. In particular, physicians' accounts of their place and community integration may have been colored by a desire to justify their decision to stay. Further work with physicians earlier in the integration process is necessary to better understand the obstacles they face and the strategies they employ to overcome them.

An increase in the diversity and number of subjects would have increased the representativeness of our study. Selection bias may exist due to the use of snowball sampling in a limited geographic area, though we feel that the final mix of subjects represents a broad spectrum of rural physicians and their diverse motivations. The lack of racial/ethnic diversity is particularly notable, and was a result of both physician demographics in the study area and the bias of the sample toward older physicians as a result of study inclusion criteria. Finally, our subjects were also older and more likely to be in a large private group practice than the typical rural physician.

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