The Formation of Networks for Career Continuation: Examination of a Survey of Female Physicians

Asako Takada and Eri Yokota

***Abstract*—Because of the shortage of physicians in Japan, returning to work of female physicians is highly desirable. We find that the importance of building physician's professional networks for the female physicians to return to the hospital and continue to work. It will also likely be important for female physicians to adopt an attitude of freely discussing their circumstances within the network. Networks between physicians are closed, bonding relationships based on mutual assistance.**

***Index Terms*—Female physicians, hospital management, human networks, professional career.**

I. Introduction

The lack of physicians has become a societal issue almost in 20 years in Japan. And it has been focused the way to boost a return to the workplace by female physicians. Despite a roughly three-fold increase in the number of female physicians over 1965 figures, only approximately 70% of them work on the full time when compared with their male counterparts (According to the 2007 Ministry of Health, Labor and Welfare White Paper, female physicians accounted for 17.2% of the total number of doctors (in 2004), with 90% of male doctors and 76%-85% of female physicians fully engaged in work as a doctor for 30 years after obtaining their medical license.).

Physicians practicing in the current shortage of doctors do so under demanding circumstance. Female physicians have no option but to temporarily leave the workplace for childbirth and child-rearing, and a number of issues need to be resolved regarding the return of female physicians to the workplace. These include the difficulty of providing back-up upon their return to work and of them undertaking 30 hours and more of continuous shifts while raising children. The reasons are many of their hesitation to returning to the workplace. But two stands out. One is the reeducating system for the female physicians who left the workplace for childbirth. The other is the psychological factors for the female physicians. Obviously enhancement of the system is vital, but what are the psychological factors quite separate from the systematic issues that prevent a return to the workplace, and what will enable those factors to be eliminated?

It is generally held that human networks significantly influence work achievements and career. They are also even said to be a key element in the continuation and success of business [1]. For this reason, this paper focuses on the human networks of female physicians. Are human networks useful to female physicians in enabling the continuation of their career as it is with business people? To find out, a survey was taken regarding whether female physicians actually develop and maintain human networks, and if they had any relevance to career continuation. Specifically, a fact-finding survey was conducted of currently employed female physicians with careers of one to thirty years. On the basis of the results, examination was made specifically of what kind of human network is required for career continuation, and what kind of network female physicians will require in the future for career continuation.

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II. Review of Previous Research on Networks

In order to create a framework for the survey on the relationship between the human networks of female physicians and career continuation activities, a review of previous research on the relationship between human networks and work and on physicians and human networks is presented below.

A. Human Networks and Work

Human networks are important when undertaking work. Research into networks has been conducted from a variety of perspectives in line with the development of social relationship capital research. In broad terms, there are two schools of thought regarding human networks – the bonding type and the bridging type [2]. Because the members of a bonding network are interconnected, it is a relationship in which members need to be cognizant of others. The ties in a bonding network produce norms and trust within the network to strengthen a homogenous group with so-called "introverted" relationships, strong internal bonds tend to make such networks exclusive, frequently resulting in a grouping of homogenous identities [3], [4] (Coleman examined networks from the concept of social capital.). There is close involvement between members of the network and, because mutually rewarding relationships form the foundation, there is strong commitment to the network. Compared with other networks, there is also a high degree of confidentiality regarding information received from the network [5].

In contrast, the bridging network ties together a looser grouping of differing types of people in a cross-sectional manner. This type of network functions as a nodal point for different types of people from different organizations, guaranteeing variety and, therefore, a strong capacity for information gathering. On the other hand, it is said to be difficult to maintain conformity and uniformity within the network. Having a broad, varied and open network with numerous people is important to career continuation and job

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change [6- 7]. In particular, [2] indicated that promotion is rapid for those in managerial positions who include in their personal network a large number of people who are socially considerably distanced from themselves in terms of different fields, ages, race, sex, etc.

Exhibiting different characteristics, there is no conclusion that either the bonding network or the bridging network is superior to the other. Utilizing the functions that they each have in accordance with circumstances will lead to competitive superiority [2]. It is said that there are two reasons for the benefits that come from having diverse human networks. One is said to be the increase in the volume of information that comes from having ties with a number of different groups. The second reason is that there is diversity in the type of information. That is, in order to receive many-sided and varied information, rather than associate solely with people in the community to which you belong in an "introverted fashion", consciously creating opportunities to access "external" people from different fields and of different types is said to have a positive effect, be it when changing jobs or developing business (e.g.,[8][9]). Having bridging networks rather than bonding networks is frequently advantageous, at least in terms of promotion and changing jobs.

B. Physicians and Human Networks

The focus of interest in research on physicians and human networks was how medical information was transmitted. Research has been conducted from a perspective of medical information and networks since[3], clarified that the adoption of new pharmaceuticals circulated through a region through human networks[10] As another avenue, there is research involving attempts to provide better medical services through mutual supplementation by building networks between organizations including hospitals. The core of this research has mainly been the networks themselves in hospital organizations, with little attention given to the physicians who actually work there.
Research into female physicians points to the importance of building ties between female physicians and building networks through a variety of clinical physicians publishing in their own specialist society journals to reflect opinions from the actual workplace [11], indicated that for female specialists and researchers in the physical sciences, including physicians, to continue their work it was important to have a connection with the female senior colleagues around them. Although this research comments on the importance of connections with female senior colleagues, it mainly focuses on how to create infrastructure that makes it easy for female physicians to work with each other, with relatively little attention paid to the building of networks [12].

III. Research Framework

The networks of physicians are of the "bonding" type structure. In the formation of a physician's career, the medical bureau holds considerable sway and is a monolithic, highly homogenous organization with professors at the apex. With the work format also centered on the hospital and the difficulty in drawing a line between private time and work time, it is hard to find time to do personal activities with people outside the hospital, making the networks formed within the hospital extremely strong. In this strong, "bonding" type of network, female physicians were seen as "different" and "requiring consideration" and male physicians were frequently preferentially selected when finding positions or posts inside a hospital.

In light of the suggestions made by human network theory, for career continuation through job change and promotions it is considered important for female physicians to have "bridging" networks where they can meet people with a variety of experience outside the medical bureau. Since the introduction of the new internship system in 2004, female physicians also who do not belong within the medical bureau system and for whom it is necessary to forge their own career themselves, need to have a variety of information and to come into contact with people who can provide that information to be able to change jobs, and it is thought that female physicians will likely require bridging networks.

In conducting the survey to investigate networks for the career continuation of female physicians, it was determined to approach the issue from two aspects – environmental factors and personal action characteristics.

The first aspect is whether there is diversity in the environment in which female physicians find themselves. The second aspect was the personal action orientation. "Action orientation" refers to whether or actively seeking interaction and information exchanges with physicians outside the same medical bureau.

The second aspect was the personal action orientation. "Action orientation" refers to whether or not an individual takes action such as intentionally and actively seeking interaction and information exchanges with physicians outside the same medical bureau. Specifically, it is whether an individual tends to have "introverted" relationships with interaction that emphasizes ties within the same medical bureau, or whether, conversely, they tend to be more extroverted, having interaction with people outside the hospital with different types of work. Individuals who had action orientation wherein they interacted with various people in differing field were referred to as "external interaction orientation types," and those who tended to focus on networks in the same medical bureau were called "internal interaction orientation types."

Diversity in the environment of the individual	High	i	iv
	Low	ii	iii
		Internal Orientation Type	External Orientation Type
		Action orientation in respect of networks	

Fig. 1. Survey framework

IV. Survey Summary

The survey was conducted from July 2007 to April 2008,

with between one and one and a half hours spent on each interview. Total 24 physicians were interviewed. The semi-structured interview method was utilized in the survey. Female physicians currently practicing at university hospitals or general hospitals, or female physicians from medical bureaus were the subject of this survey. One reason for selecting subjects who had belonged to medical bureaus and hospitals is that it was considered important to ascertain the influence of the medical bureau which had been the crux of networks for physicians to this point. Another reason is that, because it has been just five short years since the implementation of the new internship system, it was decided that survey subjects should include individuals who had come through the medical bureau system, which a large number of current physicians have experienced, rather than just the physicians coming through the new system, the most experienced of which are now only in their third year after internship and just starting to build their careers.

Ultimately, 24 physicians either working at university hospitals or who had come through the medical bureau system were interviewed (Table I).

TABLE I BACKGROUND OF PHYSICIANS

Number	Current Affiliation	Specialty	Career Length (years)	Current Position
1	University Hospital A	Pediatrics	31	Professor
2	University Hospital B	Ophthalmology	22	Associate Professor
3	Part-time	Internal medicine	20 *	
4	Government office	Internal medicine	22	
5	Hospital C	Internal medicine	30	Deputy Director of Hospital
6	University Hospital D	Surgery	2	
7	University Hospital D	Surgery	1	Intern
8	Hospital E	Internal medicine	26	
9	Hospital F	Obstetrics/gynecology	2	Intern
10	Hospital F	Obstetrics/gynecology	1	Intern
11	Hospital F	Obstetrics/gynecology	19	Deputy Department Manager
12	Hospital F	Internal medicine	1	Intern
13	Hospital F	Dermatology	6	
14	Hospital F	Obstetrics/gynecology	2	Intern
15	Hospital F	Internal medicine	17	Senior Physician
16	Hospital F	Ophthalmology	17	Deputy Department Manager
17	Hospital F	Obstetrics/gynecology	7	
18	Hospital F	Surgery	4	
19	Hospital F	Surgery	4	
20	Hospital F	Internal medicine	10	
21	University Hospital G	Comprehensive Medicine	32	Lecturer
22	Hospital H	Internal medicine	21	
23	University Hospital I	Internal medicine	21	Associate Professor
24	Hospital J	Obstetrics/gynecology	10	

V. SURVEY RESULTS–ANALYSIS BY FRAMEWORK

The results of the interview survey show first of all that all interviewees were very aware of the importance of having networks. When selecting their specialty, physicians with a still short career responded that they obtained information regarding how female physicians were treated in each of the specialist departments and on how to conduct themselves within the organization in order to better forge human relationships from the network of the same university or hospital. Many of them spoke of the benefits of information obtained from so-called internal interaction, and there were many episodes in which, once their career was more established, information gathered at the time of changing jobs came from a variety of networks, both internal and external.

A. Survey Results Viewed from Two Axes

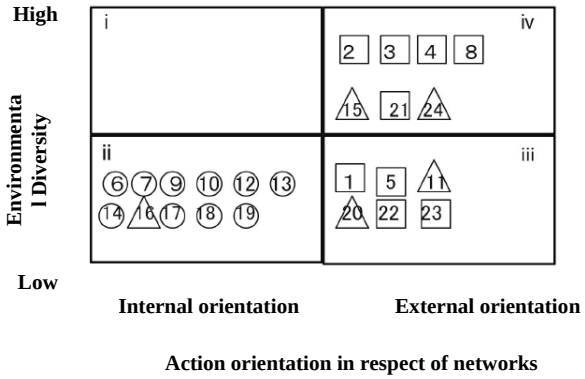

Fig. 2. Results of the interview

Fig. 2 is a graph representing the results of the interviews of the 24 people that were surveyed on this occasion. The horizontal axis shows the action orientation of the female physicians classified into two different types from the results of the interview. The vertical axis shows determinations regarding the environment in which the female physicians find themselves based on the diversity of their involvement with various occupations and people outside the medical bureau. The figures in each of the frames of the four dimensions show the interviewees of Table I. There is no significance in the scattering within each frame. This figure simply distinguishes into which of quadrants i), ii), iii) and iv) the interviewee fits.

In addition, the numbers are enclosed in three different shapes to represent differences in experience as physicians of the female physicians, those being less than ten years(encircled), ten to less than 21 years(enclosed by triangle), and 21 years or more(enclosed by quadrangle). The results show that the longer the career the greater the "external orientation." All physicians belonging to Groups I and II had graduated from medical school at least ten years prior.

B. Consideration of Each Axis

1) Environmental diversity

Of the 24 interviewees, there were six for whom a relatively large number of the hospitals at which they had worked during their careers as physicians were determined to be comprised of a variety of human resources. Of these, two did not join the medical bureau but found work at

Hospital Z which is well known for taking interns from universities nationwide, and worked at independent comprehensive hospitals after Hospital Z; three who, having married and had children early on, continued working at hospitals outside the medical bureaus through connections, and; one who after doing rotation work for several years following graduation from medical school, relocated on several occasions to workplaces she decided for herself in order to boost her surgical skills. Of the six female physicians who have children, three in particular where in environments of high diversity. Two continued careers in hospitals affiliated with the medical bureau, and the remaining physician was determined as having an intermediate degree of diversity due to a gap in practicing medicine for child-rearing. Most of the 14 interviewees that had not worked outside hospitals affiliated with their own medical bureau had careers of less than ten years. The remaining four female physicians were equally split between those who worked at affiliated hospitals with a strong disposition to medical bureaus and those in hospitals at which interns and physicians from a large number of universities work.

2) Action orientation

In terms of action orientation, 14 of the interviewees were deemed to have external orientation, while the remaining ten were determined to have internal orientation. On the other hand, many of the physicians who had longer careers were external orientation types. In particular, all those physicians with careers of 20 years or more were external orientation types. This is thought to be related to their having gone through a range of life events and possessing diversified ways of thinking, interests and ways of working, such that their work itself can no longer keep going solely through the network of their own medical bureau.

VI. Discussion

The female physicians themselves were acutely aware of the importance of maintaining human networks to the continuance of their careers. Many instances were observed of networks functioning in the locating of a new workplace when there was a need for them to change their style of working when faced with different events in their lives. The networks of female physicians increased with the lengthening of career and with the gaining of more experience in hospitals. From the perspective of linking a career together, those physicians who had interrupted their work upon significant life events such as childbirth and child-rearing, frequently received information regarding their next potential workplace from unexpected sources, people with whom they had worked with previously but with whom they were not especially close and "people with whom they had tenuous ties." This is believed to be precisely the same meaning as the strength of the weak ties indicated by Granovetter (1973).

The human networks that the female physicians had were those of their current workplace, the medical bureau, individual personal networks, personal networks outside the medical field, and networks between other female physicians. Of the networks related to their job, that is, those involving people involved in the medical field, it was the medical bureau networks and the like that had the greatest influence on career continuation, even if the ties were tenuous.

It can be supposed that for those who had temporarily left their job as a physician, the trust in their "technique" and "skill" as a physician is important. In this sense, the "medical bureau" network can also be considered a network for guaranteeing the reliability even of those who had left medicine for a time.

Guarantee of Reliability by the Medically-related Network. A large number of similarities were seen in the process undertaken in changing jobs and the use of networks. When recruitment information is received, enquiries are made within the network as to the approach to work and the character of the female physician in their job to that point, with offers of positions and invitations to join research groups made upon confirmation of the information. Before positions were offered, someone from the network who had previously worked with the female physician in question was sought and enquiries made about her abilities and character, she would then be recommended for the position or confirmation made that there would be no difficulty in working with her before an offer was made. This series of actions was considered to be activities to guarantee the reliability of the character and skills of the female physician in question.

From the perspective of the female physicians, of the three medically-related networks that they have, their own details were introduced to the medical bureau network and individual career network, which resulted in them receiving information.

A typical example is seen in the following episode in which a female physician who had temporarily left her job due to ill health was approached with the following offer of work.

"Late one afternoon, I received an unexpected phone call from a female senior colleague who was my predecessor and who was fulfilling my role at the hospital at which I am currently working. It took me by surprise. Being six years my senior at university, I had not spoken with her much. Being in the same medical bureau, we were acquainted but only to the extent that we would have a brief chat when we met at the academic society. She suddenly said, 'I'm looking for someone to take over from me.'…. When I asked how she knew I was looking for work, she said that she had heard after word got around about my circumstances which, at an academic society meeting last year, I had raised with a senior colleague whom I hadn't seen for a long time and who had been my supervisor in the medical bureau."

In many cases, information regarding the reliability of the female physician in question was guaranteed by the medical bureau network. This is thought to be due to the fact that the medical bureau network is a bonding type of network. In cases when there is no direct, detailed knowledge, several steps can be taken through someone in the medical bureau to which the female physician belongs to be put in touch with a person who does have direct knowledge of her skills and character. The medical bureau network can also be thought of as a type of reliability guarantee facility.

This also holds for the job-searching activities of the female physicians. It was also possible for female physicians to "lay the groundwork" themselves in respect of the medical bureau and have it function as a work placement liaison or match-making service. At the very least, for female physicians who need to change the type and quantity of work as required in response to important life events, it is thought that the medical bureau functioned as an organization that would guarantee the reliability of their own skills and character.

There were even cases of making introductions to acquaintances and friends in their individual career networks with whom they had previously worked, even if they were not in the same medical bureau. One obstetrician and gynecologist said that her current workplace was an introduction from a senior colleague from a different medical bureau with whom she had worked at a previous workplace.

A. External Orientation and the Importance of Diverse Networks

When female physicians have decided to continue with their careers, it is essential that they actively make some sort of approach to the networks relating to the job that they have. Naturally, constantly having diverse networks will increase the opportunity to come across a variety of information.

Of the frames in Fig. 1, being in iv), that is, the individual has a high degree of external orientation and places themselves in variety of environments, is considered to increase the potential for creating a large number of networks. Even if an individual is an external orientation type, if they fall within frame iii), the information they can obtain is of limited range as it is centered on the medical bureau network, with iv) being superior in terms of the diversity of information obtainable.

In terms of career continuation for female physicians, it is necessary to obtain diverse information from a variety of networks and to take the initiative in consciously interacting with networks other than that of the medical bureau. Through the interviews, a tendency for the action characteristics of female physicians to shift from internal orientation to external orientation the longer the career continued was identified. An important point is that in many cases the reliability of physicians was guaranteed by the medical bureau when a female physician of external orientation mid-way or further into her career was looking to change jobs. Even if they had not come through the medical bureau, the reputation of an individual was guaranteed through that person actively developing numerous networks and access, and by the increasing number of people who had worked with them through their long career.

That is, broadly speaking the guarantee of reliability can be classified into two – that which comes from the medical bureau network, and that which comes from the networks independently created by individuals themselves – and in cases where the medical bureau network is strong and has a strong capacity to guarantee and ability to provide employment matching it is effective in career continuation for those in frame iii). When not much can be expected from the medical bureau, however, the need to head toward iv) becomes inevitable.

VII. Conclusion

In order to enable the continuation of their careers, the first thing for the female physicians themselves to do from the time they are working is to actively undertake measures to build networks with a variety of people outside the medical bureau with a variety of occupations. It will be important for them to be flexible and present themselves at places where there are people with whom they do not usually have contact, be it academic societies or training sessions. When there have been career gaps due to childbirth and child-rearing, it may be possible to obtain up-to-date information through ties in some shape or form with medically-related networks other than workplace networks. Accessing these types of opportunities to obtain information can contribute significantly to overcoming the fear that accompanies a return to practice, as well as to securing recruitment information.

It will also likely be important for female physicians to adopt an attitude of freely discussing their circumstances within the network. Networks between physicians are closed, bonding relationships based on mutual assistance. If an individual is seeking a position, then divulging that fact will result in the strong probability that word will get around and that information will make its way to recruitment officers in hospitals that are recruiting staff. Another element considered to be essential is taking action to make the information that they have readily available and actively expressing their own thoughts and opinions as much as possible.

One crucial point is that female physicians, for whom under the current circumstances the likelihood that they will have to voluntarily restrict their work at some stage in their life is comparatively higher than that for male physicians, require support from those around them to prevent the networks they have with physicians and with people other than physicians from becoming disconnected, and also need to strive themselves to prevent their networks from becoming interrupted in order to continue their careers without disruption. For them to do so, it is considered imperative for systems and devices to be actively established as a society for network maintenance and updating. We intend to continue our research on female physicians from the perspective of networks.

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