

Original Article**Evaluation of the Actor's Network of Traditional Herbal Seller and Medicinal Plant Sellers in Iran (Case Study: Alborz Province)**

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ABSTRACT

Medicinal plants have played a fundamental role in the health of society in the distant past, but today people's tendency toward these herbals has increased due to the cost and side effects. Therefore, it is essential to supply the market demand for medicinal plants. Traditional herbal seller and medicinal plant sellers have an influential place in the supply chain of medicinal plants, and proper communication of this group facilitates the supply of these plants. This research was conducted to evaluate the network of traditional herbal seller and medicinal plant sellers in Alborz province. The statistical population was all groceries and medicinal plant sellers in Alborz province (N = 250). Sampling method was random sampling. Also sample size determined by Krejcie & Morgan table. The number of samples was obtained 130, which by the data was gathered. The research tool was a researcher-made questionnaire. USINET₆ and SPSS₂₂ software programs were used to analyze the network of traditional herbal seller and medicinal plant sellers. According to the network analysis results, traditional herbal seller and medicinal plant sellers interact and communicate more with suppliers of unions and guilds, other sellers, marketers, and traditional medicine experts. Also, Medicinal plant business networks, sellers, unions, guilds, suppliers, and processors have more mediating power in the network. The traditional herbal seller and medicinal plant sellers are a central activist in the business network of medicinal plants. The reciprocity index of links showed that this index is in the average range; thus, the network stability is in the average range. The degree of input and output of the model also showed that medicinal herb sellers and traditional herbal seller, major suppliers, and medicinal herb unions and guilds are in network's center. From this, it can be concluded that these actors in the network have high control and mediation power in the network. Also, exploratory factor analysis showed that the main components of the model are: cooperation and partnership network, information, communication, network formation and development measures, network organization, evaluation and follow-up of activities, marketing and sales.

INTRODUCTION

Plants have been the principal source of medicine in the distant past [1]. Among them, medicinal plants have played a vital role in maintaining individual and collective health and sustainable livelihood, making them one of the most valuable non-timber forest products [2-4]. Based on Euro monitor International Medicinal plants are an emerging industry in the agricultural sector with an average annual growth of 15.5%, whose current global trade amount is more than 150 billion dollars. It is expected development of the medicinal plant trade will reach more than 450

billion dollars by 2025 and more than 5000 billion dollars by 2050 [5]. Herbal medicine has made tremendous contributions to public healthcare and has boosted the development of medicine around the world [6]. According to the climatic conditions, Iran has good potential for medicinal plants. Therefore, business development in this sector, which plays a crucial role in marketing these products, is essential [7,8].

The world has seen a significant change in the type and nature of successful businesses in the last few

decades, and it has been realized with the development of communication [9]. Today, more than ever, communication plays a critical role in the success of businesses and includes communication between business managers. According to Brian Tracy, the ability to communicate professionally and publicly with people accounts for approximately 85% of business success as well as in life [10]. The network approach focuses on the social connections used by companies to influence the business environment. On the other hand, cooperation between business owners is also one of the important variables in business development.

It is worth mentioning that during the last decade, companies from all industries and all markets have chosen some types of agreements and strategic partnerships, called marketing and purchasing, to complement their strengths and increase their competitiveness in domestic and international markets [10]. Involved in the processes of "marketing" and "purchasing" creates "suppliers" and "customers". Both these and types of businesses are placed in a structure called market and now, the business network is used instead of the above terms. In recent years, participation in the company's networking activities has been suggested as another contributing factor affecting a company's performance [11]. Holmqvist & Ruiz [13] are believed that the business networks approach has evolved based on five assumptions: long-term relationships are more important than transactions, actors are interconnected and need each other to survive, participants benefit from networking, and some relationships are more important than others. Therefore, companies prioritize actors with significant influence, and power depends on the centrality of actors in networks. Companies exert influence and bargaining power from existing network positions and attract allies, including competitors. The establishment and development of large networks connect companies to customers, suppliers, key people, and even competitors and establish the flow of value between them. The business economy and environment of new businesses has increased compared to recent years, thanks to the emergence and development of various technologies and innovations, and the professional network of these businesses has grown faster and more significantly than in the past [13].

Various definitions of business networking are provided, Industrial Marketing and Purchasing (IMP) Group defined the business network as the conscious effort of an actor to change or develop the interaction or the structure of relationships with which it is directly or indirectly involved and suggested that the network is the core of management in the business landscape (14, 15, 16, 18). Also, Ford & Håkansson [3] have defined the business network as follows: It is used for conscious managerial interventions and responses in the interactive process whose purpose is to change the structure or communication. This conceptualization of business networks considers all actors in evaluating costs and benefits for themselves and others in the short and long term. These trade-offs relate to the adaptation of activities, actors, and resources with which they are directly involved and with others over which they do not have direct control. One of the main aspects of business networking involves the efforts of actors to use their direct relationships to intervene in those who are far from their "small" in the time and space of the network.

In this view, business networking is not simply the implementation of independent enterprise strategies of one or more actors but is part of a continuous interaction between interdependent actors, activities, and resources. Business networks may involve actors at different times and in various contexts in training, learning, coercion, or delegating to others. It is likely to include deception, reciprocity, altruism, immediate or long-term selfishness, or a range of interactive behaviors commonly known as competition or cooperation [3]. Business economic literature has investigated the effect of network activities and cooperation of companies on the performance of companies. The results of investigating the effects of the network generally show that membership in the network has positive economic and financial impacts on business and is considered a competitive advantage [19].

This advantage is realized mainly through two mechanisms, including low-cost access to information and resources [20, 21] and the possibility of achieving economies of scale without increasing the firm size. The general positive effects of networking on various measures of economic or financial performance of business are: profitability [22] or influence in foreign markets [23]. Attempts to evolve interactions in relationships that can be

expressed in terms of joint activities. The joint activities of the organization create relationships and conflict between actors and resources, which ultimately leads to the formation of a network. There may be interdependencies between some of the organization's activities [19]. The first scientific concepts related to the network are cooperation and trust. Cooperation includes exchanging information, changing activities, sharing resources, increasing each other's capacity for mutual benefit, and achieving a common goal [22]. Business networks find their basis in social communication [24]. Creating a regional network without social relations between actors, leading to regional culture, is not feasible. From the mid-1980s onwards, network theory and analysis attracted the attention of many economists, planners, sociologists, geographers, psychologists, and politicians [25, 26].

In today's competitive and globalized world, the importance of networks has increased greatly by facilitating access to knowledge, resources, and markets. The business network, which is a free business association, provides processes and structures for joint decision-making and integration of member efforts in order to design and produce products and services, develop new processes, reduce the time required for innovation or for entering the market, exchanging information and other resources, take steps. Networks create many opportunities for business, including communication investment that strengthens interdependence between different systems and provides complements. Each collaborative process affects all the companies in the network [20]. Also, smart companies use the network to achieve the goals they have drawn for their future, including focusing on their core competencies, reducing transaction costs, more effective innovators, and achieving new methods of deeper communication with customers [27].

The theoretical literature has long emphasized that belonging to a network may be beneficial for a firm. Performance networks facilitate the flow of knowledge or technological advances through a number of mechanisms [28]. Also, nowadays apply the different types of partnerships. Such as commutation, buying and selling goods, give information about prices and market has become very popular because companies can increase their activity networks, communication, and computer capabilities with this device [29]. On the other hand, belonging to

a network may cause innovation among the participants [30]. It can also encourage business formation operating in alternative markets because investment is more comfortable in new knowledge and contacts with customers and tourism bodies. Mohammadzadeh *et al.* [31] consider a suitable distribution network in medicinal plants as one of the effective strategies for entering foreign markets. Also, Abedini *et al.* [32] relate the problems of the distribution channel of herbal medicines from the consumers' point of view to the lack of proper communication between sellers and activists. Examining the communication and the manner of these interactions within the pharmaceutical network of Iran shows some informal relationships between the different actors of this network. These links are divided into categories: inter-company, between the company and the education and research system, between the company and the government, and between the education and research system and the government. Some of these links are within national borders, and some are international. The point is that any link that is one of the company's elements is based on the company's profit. Contrary, if it is an element of the government, it is essentially based on national interests (social welfare, strategic supply of medicine, business development, promotion of national pharmaceutical capability, etc.). But when the links with the game of the government institution take on the flavor of individual profit, the rules of the game, the concerns, and characteristics of the industry are overshadowed and directed towards opportunism, profit-seeking, and non-productive rent-seeking, which ultimately changes the nature of the government's role [32].

This study examines the network and its components among medicinal plant sellers at the level of Alborz province, considering the importance of medicinal plants, the necessity of networking in business development and its effects on supply and demand, and ultimately the final income and profit.

Porjam & Natghi [33] studied the effect of network formation on the performance of tourism businesses. Their findings indicated the performance of organizations improved in network mode. As a result, a significant relationship was found between working in a network and improving performance. Alizadeh *et al.* [34] in research entitled the conceptualization of networking in the home businesses based on agricultural products with a qualitative approach,

introduced eight components, including customer orientation, key activities, competitor analysis, healthy product processing, advertising and sales channels, key partnerships, proposed values, and material and spiritual sponsors. Among eight factors, customer orientation was introduced as the most substantial component. Research related to networking is mentioned in Table 1.

MATERIALS AND METHODS

This research, regarding the goal is an applied and regarding the analysis is a descriptive-analytical type of research. Survey method was used to collect information. The statistical population of the present study is the traditional herbal seller and medicinal plant sellers of Alborz province (N = 250). The method of sampling was simple random sampling and according to the table of Krejcie and Morgan, the number of samples determined as 130. The research tool was a researcher-made questionnaire. Validity was obtained through expert review and reliability through Cronbach's alpha ($\alpha = 0.78$), indicating the reliability of the questionnaire. The social network analysis method was used in this research. Four criteria, including information exchange, cooperation, coordination, and communication were selected to investigate and evaluate the network of traditional herbal seller and medicinal plant sellers. USINET₆ and SPSS₂₂ software were used to analyze the network of traditional herbal seller and medicinal plant sellers. Betweenness, centrality, and in and out degree of input and output indices were selected to check the network. Betweenness: refers to the degree to which a node is placed between other nodes in the network, or it takes into account the node or node's connection of its neighbor and gives a higher value to the nodes that connect the clusters. Centrality: This measure represents the social power of a node based on the amount of communication it establishes in the network. In and out degree: the input degree centrality is the degree of fame and authority of the activist and the output degree centrality indicates the social or political influence of the actor.

DISCUSSION

The results in Table 2 shows that 77.8% (98 people) of traditional herbal seller and medicinal plant sellers were men and 22.2% were women. Respondent's Average age was 38.8 years. There were 48 medicinal herb sellers with 5-15 years of work experience, and their average work experience was

8.6 years. Traditional herbal seller and medicinal plant sellers' education was diploma and Associate of Science, 41 people (32%). The most acquaintance with other sellers was 5-15 people, the average of which was nine people, and in the country, it was two people and less.

The factor analysis technique was used to examine the internal correlation and categorization of the variables of traditional herbal seller and medicinal plant sellers in Alborz for several limiting factors and to determine the amount of variance explained by each factor.

The purpose is to achieve the dimensions hidden in the set of objects that are not easily visible [42].

KMO and Bartlett tests show the appropriateness of the data for exploratory factor analysis. The value of KMO for network variables was 0.796, indicating the appropriateness of the data for factor analysis.

Also, the Bartlett value was obtained at 756.706, which was significant at the 99% confidence level.

Based on this, seven factors were extracted which eigenvalues were higher than 1. The extracted component and factor load, eigenvalue, cumulative variance percentage, Percentage of total variance reported in the table 5. The varimax method was used to rotate the factors. Hence, the variables with a factor loading higher than 0.50 were identified. The results in Table 5 show that the first factor, with 13.93%, had the largest share in explaining the variance of the total variables related to the components of medicinal plant seller's networking in Alborz. This factor includes five variables that were named under the title of cooperation and partnership. Based on this, one of the main components of network formation is cooperation among sellers in exchanging price and product information and participation in network formation and development.

Also, the results show that the second factor with a 13.65% variance explanation is very close to the first factor. This factor also included four variables. This factor was named information.

The third factor explains 11% of the total variance. This factor also included five which was named as communications. Communication leads to the formation and development of a network; however, this communication should be in line with network activities.

The fourth factor explains 9.95% of the total variance of satisfaction. This factor was called Measures of network formation and development.

The fifth factor, explaining 8.09% of the variance, was ranked fifth and included four variables. This factor was named network organization.

The sixth factor explained 7.86% of the total variance and includes four variables, which was named under the title evaluation and follow-up of activities.

The seventh factor explained 6.27% of the total variance. It included three variables as follows, which was called marketing and sales.

Based on Table 6, seven factors were identified, which explained 78.70% variance of components traditional herbal seller and medicinal plant sellers' networking in Alborz province and indicate a suitable and acceptable amount.

Table 1 Research related to networking

Researcher	Result
Manello <i>et al.</i> [12]	the components of the business network have not been well identified. On the other hand, they consider establishing a relationship between business owners as the first step in creating a network. They also state that every network in the wide world is small and consists of several networks
Valeri [30]	network allows each company to enjoy the same benefits as if they were larger or had formal and permanent relationships with other companies without losing their strategic and economic independence
Pourjam and Natghi [33]	the performance of organizations improves in a network mode and as a result there is a relationship between working in a network and improving performance. There is a meaning
Alizadeh <i>et al.</i> [34]	Eight components of customer orientation, key activities, competitor analysis, healthy product processing, advertising channels and introduced sales, key participation, suggested values, and material and spiritual supporters, and in the meantime, they identified customer orientation as the most important component.
Maghsoudi Ganjeh <i>et al.</i> [35]	Networking has a positive and significant effect on the commercialization performance of knowledge-based companies; So It can be said that by increasing and improving networking capabilities, including imaging management capabilities, Ability to learn network, ability to find suitable partners and ability to manage network relationships
Aaboen <i>et al.</i> [36]	spin-offs can act as a resource intermediary and a bridge between research and commercial parties or act among commercial parties
Hosseinpour <i>et al.</i> [37]	Other factors include effective communication, government support.
Massaro <i>et al.</i> [38]	when were trust based on common values, established companies could have more effective and efficient knowledge transfer, save money in investments and reduce cost for implementing control tools
Huovinen [39]	network from several dimensions: (1) Identifying preferred network modes and methods as part of business management. (2) Embedding the network in setting business goals. (3) Adopting the network as a decision-making dimension. (4) Adding networks to agendas to increase business performance and competition.
Tura <i>et al.</i> [40]	when a member of the network chooses a new method or changes the network, the stability of the network may be disrupted
Palalić <i>et al.</i> [41]	found that there is an influence of the network and business environment on student leadership. Unlike transformational leadership, retail and sales leadership is only influenced by the business environment.

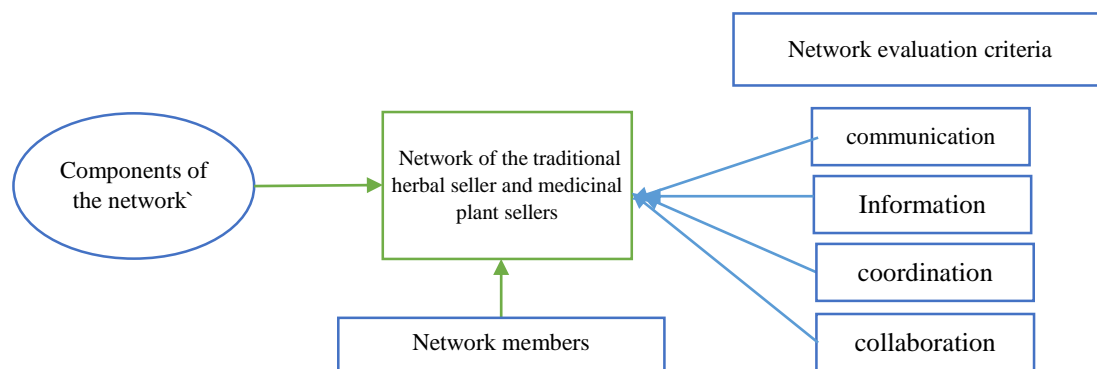


Fig. 1 The theoretical framework of the research

Table 2 Personal and professional characteristics of traditional herbal seller and medicinal plant sellers

Number of people (percentage)	Category	Variable
98 (77.8)	Male	Gender
28 (22.2)	Female	
6 (5)	Under25	Age
21 (17.2)	25-35	
36 (29.4)	36-45	
53 (43.4)	46-55	
6 (5)	Upper 55	
12 (9.5)	Under5	Work experience
61 (48.4)	5-15	
21 (16.7)	16-25	
32 (25.4)	Uper25	
16 (12.5)	Elementary	
28 (21.9)	Guidance school	Education
41 (32)	Diploma and Associate of Science	
23 (18)	Bachelor	
15 (11.7)	Masters	
5 (3.9)	P.H.D	
34 (26.5)	Under 5 people	Acquaintance with the number traditional herbal seller and medicinal plant sellers in Alborz
72 (53.3)	5-15	
18 (14.1)	16-25	
8 (6.1)	Upper 25 people	
39 (30.7)	Don't know anyone	
55 (43.3)	2 People and less	Acquaintance with the number traditional herbal seller and medicinal plant sellers in contrary
21 (16.5)	2-4 People	
12 (9.5)	More than 4 people	

According to Table 3, the highest frequency of familiarity (How many medicinal plants sellers do you know in the province?) among medicinal plants sellers with others was moderate and 44.7 percent.

Table 3 Familiarity level with other traditional herbal seller and medicinal plant sellers

category	frequency	percentage
Very little	15	11.5
Little	29	22.3
Medium	58	44.7
High	19	14.6
Missing	9	6.9
Total	130	100

According to the results of Table 4, 65.38 percent of medicinal plant sellers are active in social networks related to their business.

Table 4 Membership in social networks of traditional herbal seller and medicinal plant sellers

category	frequency	percentage
Yes	85	65.38
No	35	26.92
Missing	10	7.7
Total	130	100

Exploratory factor analysis of the network components of traditional herbal seller and medicinal plant sellers

Table 5 KMO and Bartlett test

Significance	Bartlett	KMO
0.000	756.706	0.796

Determining the number of factors: To determine the number of factors, those whose eigenvalue was higher than one was accepted.

Table 6 The results of the factor analysis of the components of the business network of traditional herbal seller and medicinal plant sellers

Component	Variable	Factor loading	Eigenvalue	Percentage of total variance	Cumulative variance
Cooperation and partnership	Appropriate cooperation of traditional herbal seller and medicinal plant sellers in marketing activities	0.78	4.39	13.93	13.93
	Helping to identify cooperation areas between people and informing them	0.86			
	Helping to establish cooperation between sellers and suppliers of medicinal plants to respond to market demand while competing	0.81			
	participation of network members in the research activities of medicinal plant marketing researchers	0.75			
	introduction of people familiar with market conditions and prices for medicinal plant network	0.87			
Information	The amount of access to the workforce and medicinal plant experts in the network	0.82	4.36	13.65	27.58
	Informing all members about the benefits of the network	0.85			
	Market information (the existence of institutions producing market statistics and information the level of information transparency and access to this information)	0.84			
	Sharing information collected by people (market, price, competitors, etc.)	0.75			
Communications	Communication and interaction between different business activities (production, processing, and sales)	0.75	3.74	11	38.59
	Consensus of members and offering suggestions to improve network activity	0.64			
	Continuous exchange of market information and prices among members	0.81			
	Introduction of people familiar with market conditions and prices for medicinal plants network	0.64			
	Development of personal communication of traditional herbal seller and medicinal with themselves and managers and experts of related organizations	0.63			
Measures of network formation and development	Developing and combining the skills of sellers through team building	0.72	3.38	9.95	48.54
	Helping to establish direct and indirect business relationships (purchase and sale of medicinal plants) between sellers in different regions of the province and country	0.69			
	Deciding on the possibility of each person's participation in the network	0.62			
	Informing all members of the network about the benefits of the network	0.65			
	Helping to identify areas of cooperation between people and inform them	0.66			
Network Organization	Compilation of the operational plan of the network and the formulation of the executive plan of each member of the network of medicinal plants according to the ability and field of activity	0.76	2.75	8.09	56.6
	The consent of people (sellers, producers, etc.) To cooperate in the network	0.67			
	Determining the person responsible for performing the tasks based on the level of knowledge and skill of the actors	0.66			
	Training sellers to create more interaction	0.64			
evaluation and follow-up of activities	The possibility of evaluating the activity of the network by the sellers and managers of the network of medicinal plants	0.73	2.39	7.86	64.5
	Evaluating the progress of network programs by sellers of medicinal plants	0.54			
	Follow-up of the group work assigned to the actors to achieve the goals of the network	0.65			
	Transparency in planning and decision-making by network leaders and managers	0.51			
marketing and sales	The existence of new marketing and sales methods (electronic and digital marketing)	0.69	1.99	6.27	70.78
	solving the marketing problem through interaction and division of tasks between sellers	0.63			

Component	Variable	Factor loading	Eigenvalue	Percentage of total variance	Cumulative variance
	using appropriate methods to reduce the response time to customer needs, which was called marketing and sales	0.61			

The network of traditional herbal seller and medicinal plant sellers in Alborz province

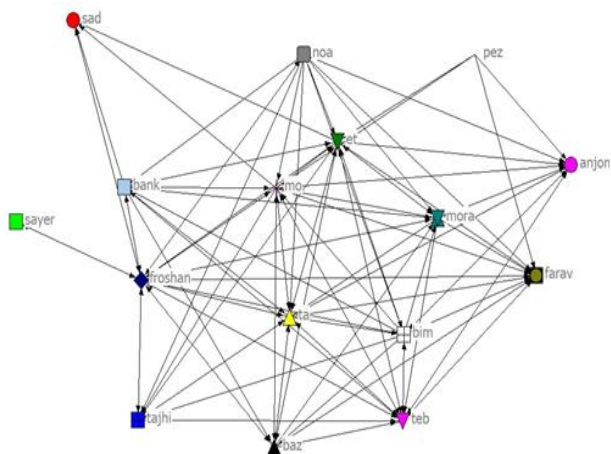


Fig. 2 The network of traditional herbal seller and medicinal plant sellers based on the degree of centrality

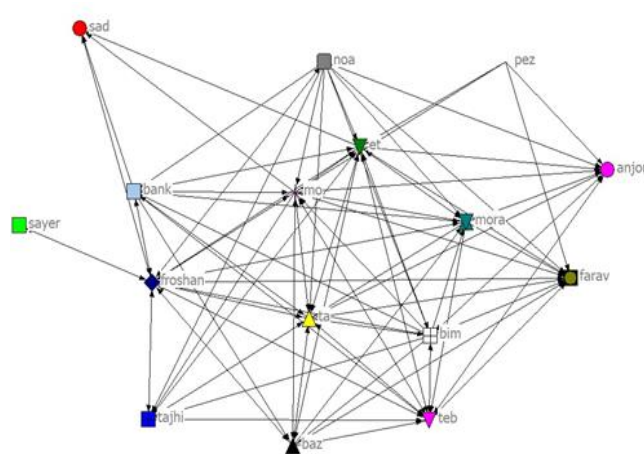


Fig. 3 The network of traditional herbal seller and medicinal plant sellers based on betweenness centrality

Figure guide

symbol	Actor	symbol	Actor
froshan	Traditional herbal seller and medicinal plant sellers	teb	Traditional medicine specialists
et	Unions and guilds of medicinal plants	farav	Companies that produce and process medicinal plants
mo	Researchers (universities/institutes/research companies)	anjom	Scientific associations of medicinal plants and other fields of agriculture
bank	Banks	pez	Doctors (provincial healthcare)
baz	Marketers	tajhi	Manufacturers of equipment and raw materials of medicinal plants
ta	Major suppliers of medicinal plants	sayer	Other traditional herbal seller and medicinal plant sellers
noa	Science and technology parks/innovation centers/startups	sad	Exporters of medicinal plants
bim	Insurance of agricultural products	mora	Agent of medicinal plants (Jihad Agriculture Organization)

Indices of the network of traditional herbal seller and medicinal plant sellers in Alborz province

The degree of between centrality indicates that the activists, who have a higher degree, have a higher ability to mediate in the communication and exchange of information among the actors. Based on this, medicinal plant, unions and guilds, suppliers, and processors have higher mediating power. The indices of the network of traditional herbal seller and medicinal plant sellers in Alborz province shows that the centrality based on internal and external links in the network is 23.66 and 28.25%, respectively. The link rate of 23% indicates that 77% of the links are distributed at the network level, and only 26% of these links are in the hands of the central players

(traditional herbal seller and medicinal plant sellers, unions and guilds, suppliers, and processors of medicinal plants). On the other hand, the concentration of external links was 28%, indicating a centrality in receiving information from central actors (traditional herbal seller and medicinal plant sellers, unions and trades, suppliers, and processors of medicinal plants). In general, the lower the concentration in the network, the more participation is possible, and its management is successful, but it will be more difficult. Achieving holistic management is possible by reducing the concentration of decision-makin

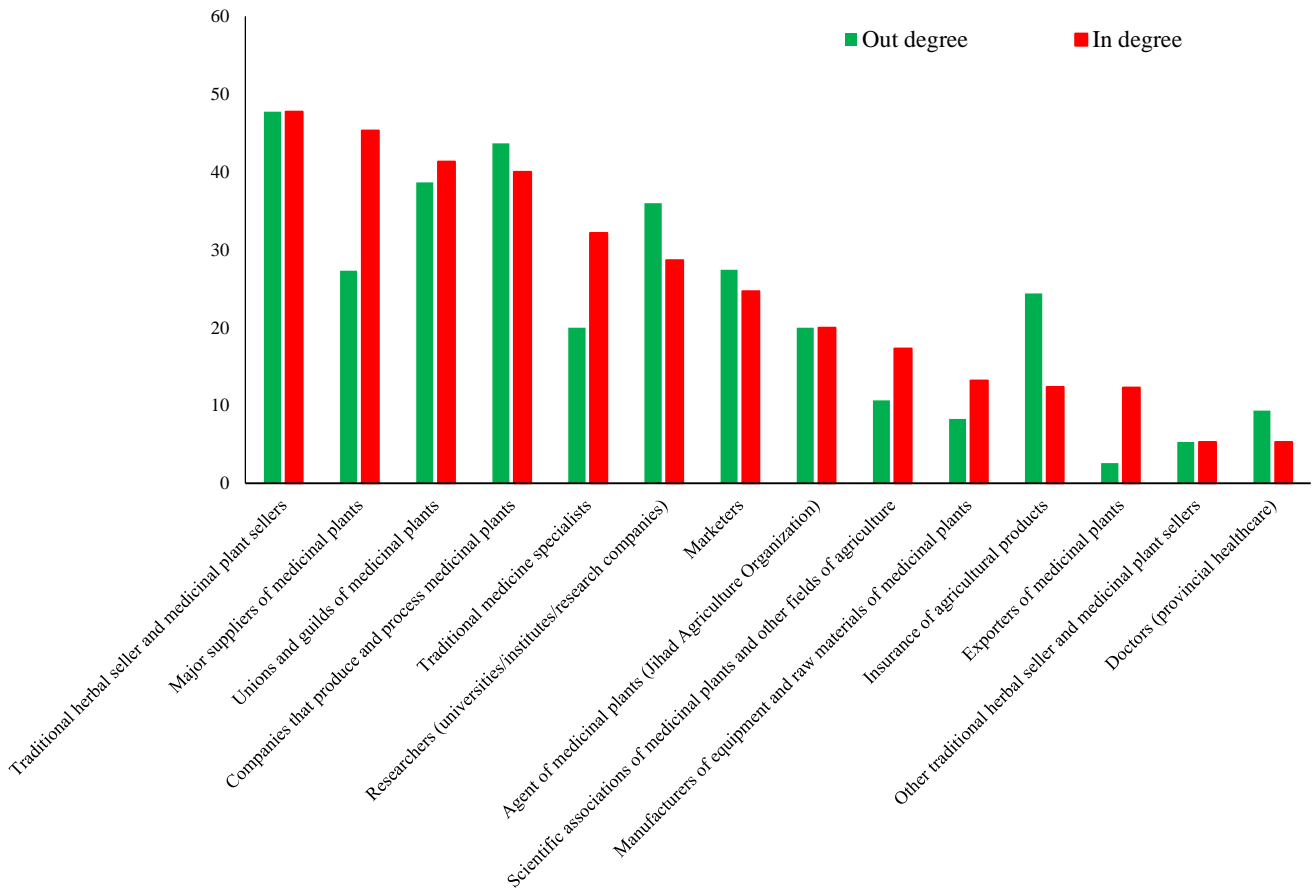


Fig. 4 Degree of input and output of medicinal plant network actors

The link reciprocity index is another index examined among institutional actors, whose value was obtained at 40.65%, which expresses the average level of mutual communication between actors. In other words, communication in the network is reciprocal at an average level. It can be concluded that the stability of the network of activists is at an average level. In this research, the sellers of medicinal plants have been studied result showed, information output is 26%, and the information input is 21% which indicates low distribution of information in the network.

Examining the in and out degree of sellers shows that sellers have the highest in and out degree, followed by suppliers, unions, and guilds of medicinal plants. From this, it can be concluded that these activists in the network have high control and mediation power in the network (Fig. 4).

CONCLUSION

Improvement of commutation and development of network are key of success in bossiness. But the concept of business networks is still not well developed. An attempt has been made to list the

components that are thought to be included in business networks and show them with case studies. Still, there is no coherent theoretical structure that can be the basis for the empirical investigation of business networks or express this concept in a clear way for practitioners [3]. This research aims to identify the networking of medicinal plants traditional herbal seller and medicinal plant sellers and its components in Alborz province.

The results showed that the traditional herbal seller and medicinal plant sellers have a low level of education. This is probably one of the reasons for the lack of networking knowledge among sellers. On average, traditional herbal seller and medicinal plant sellers knew nine persons selling medicinal plants in the province. And in the country, they knew only one person. That seems commutation of sellers are low and this is one of the barriers of formation network.

On the other hand, the results showed that the level of familiarity of traditional herbal seller and medicinal plant sellers with others is medium level, and 60% are not members of the social networks related to traditional herbal seller and medicinal plant sellers.

Based on this, it can be said that sellers of medicinal plants and perfumers are only familiar with sellers who are in the same neighborhood or street or with sellers having a similar origin. In other words, the existing network is not a professional network based on needs. That indicated the necessity of study the components and review the business network of traditional herbal seller and medicinal plant sellers.

The results of exploratory factor analysis showed that traditional herbal seller and medicinal plant seller's network consists of seven components were as follows: Cooperation between all stakeholders of medicinal plants. This result is similar with [6, 7]. Information [17, 18], prices, market situation should circulation. Communications among sellers have great impact on respond to the market needs. [9], Measures of network formation and development, title evaluation and follow were in the first to seventh priority.

According to the information exchange, cooperation, coordination, and communication criteria, traditional herbal seller and medicinal plant sellers interact and communicate more with suppliers of unions and guilds, marketers, and traditional medicine experts. Most of these interactions were to supply the required plants and products, information about the prices, and less attention was paid to things like sales and marketing through the network. According to the medicinal plant business network, traditional herbal seller and medicinal plant sellers, unions and guilds, suppliers, and processors have more mediating power in the network. Therefore, the mentioned activists should be used as a communication channel to manage the network and exchange information. Traditional herbal seller and medicinal plant sellers, as an activist, are at the center of the medicinal plant business network. Therefore, to manage the mentioned network, it is possible to use the sellers of medicinal plants and develop the relevant businesses. The reciprocity index of links showed that this index is in the average range; thus, the network stability is in the average range. The in and out degree of sellers unions and guilds are at the center of the network. From this, it can be concluded that these actors in the network have high control and mediation power in the network. Based on the findings, the following items are suggested

✓ According to the less familiarity with others: Development of communication between network

members through training of traditional herbal seller and medicinal plant sellers to obtain more detailed information about the needs of customers

✓ Information is one component of network Exchange of market information among sellers to meet the market demand in different regions of the province and know the needs of the market

✓ Based on low commutation in network Establishing the interaction of sellers and perfumers with organizations to meet the needs of customers

✓ Training traditional herbal seller and medicinal plant sellers to establish interactions and communication with others and provide information about other sellers to them

✓ Teaching the benefits of networking to for traditional herbal seller and medicinal plant sellers

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