

A Fuzzy Approach to Social Worker's Turnover Intention

Yun-Jeong Jang

Department of Social Welfare, Kyungnam University, Korea

449 Woryeong-dong Masanhappo-gu, Changwon-si, Gyengsangnam-do Republic of Korea

Tel:+82-55-249-2277, Fax:+82-55-999-2138, E-mail:jangyj@kyungnam.ac.kr

Abstract

This study seeks to find the factors associated with social workers' turnover intention and show us how to manage turnovers by looking for some rules affecting turnover intentions. Our investigation surveying 331 social workers reveals that social workers' turnover intentions are affected by organizational commitment, job satisfaction, and burnout. Our pattern analyses using fuzzy ID3 show that the higher their commitment, the higher their job satisfaction stemming from promotion opportunities, rewards, and personal relations with peers and bosses. In addition, turnover intentions decreases (even if burnouts--the job-related stress--are very serious) when organizational commitment increases. We come to understand that organizational commitment could be a more important variable than job satisfaction and burnouts. Such results suggest that it would be necessary to consider how to improve social workers' organization-wide commitment rather than satisfaction and burnout related to jobs and environments.

Key Words : Turnover Intention, Fuzzy ID3, Decision Making Tree

1. Introduction

Social welfare provides intangible services to clients through face-to-face contacts between clients and social workers. Because of such characteristics, social workers have been playing a key role in social welfare organizations. In this sense, social worker's turnover is very detrimental to stable and continuous services to clients, which can result in such negative consequences as the lower quality of services and the worse morale[1].

We need to get interested in social worker's turnover intention because it can lead to turnover behavior, lower job performance, and negative impact on organizational development and the quality of life. Our research reveals that 59.1% of social workers at social welfare facilities and 52.5% of employees working for related facilities have been considering either turnovers or termination of employment [2]. Although turnover intentions are negative consequences affecting working lives of employees, it can become a useful indicator or predictor to provide us good informations to minimize their negative effect. In this sense, a necessity arises to conduct in-depth studies about employees' turnover intentions.

Studies dealing with social welfare worker's turnover intentions have been concerned with such demographic

factors as gender, age, marital status, and education[3-7]. As mentioned above, there are a variety of factors affecting social welfare workers' turnover intentions. Of these factors, this study attempts to focus on job satisfaction, organiza-

tional commitment, and burnouts. To serve this purpose, this study seeks to investigate those factors affecting turnover intentions through multiple regression analyses and then to find specific rules to affect turnover intentions. By doing so, we would come to suggest how to manage the problems associated with turnovers.

2. Trial Models to Evaluate Turnover Intentions

There are two kinds of research models with regard to turnover intentions. The first one considers job satisfaction as a critical moderating variable and then attempts to explain turnover intentions based on personal and organizational variables affecting job satisfaction. The second one tends to consider organizational commitment as an important variable together with job satisfaction.

It is widely accepted that these two variables play a critical role as a moderating variable even if the argument about the causation and interaction between the two variables are still going on.

Burnout of social workers, who can be defined as a one of the pivotal human service workers, has been known as a predictor of turnover intentions. As burnout is a long-term and complex response which could results from the unresolvable stress experienced by human service workers (nurse, social workers, clinical psychologist), we make our evaluation model as shown in Fig. 1.

For the purpose of this study, we surveyed social workers in Daegu by mailing them questionnaires and then analyzed 321 data obtained from them. To examine the factors affecting turnover intentions, we conducted multiple regression analyses which poise turnover intentions as a dependent variable and then job satisfaction, organizational

Manuscript received Jul. 10, 2010; revised Sep. 1, 2010; accepted Sep. 5, 2010

This work was supported by Kyungnam University Foundation Grant, 2010.

commitment, and burnouts as independent variables.

Since fuzzy ID3 has been known as a useful tool for the pattern analysis, we used the fuzzy tools to investigate turnover intentions. fuzzy ID3 can provides us decision making trees from fuzzy role if we input the numbers indicating turnover intentions and membership functions about fuzzy numbers.

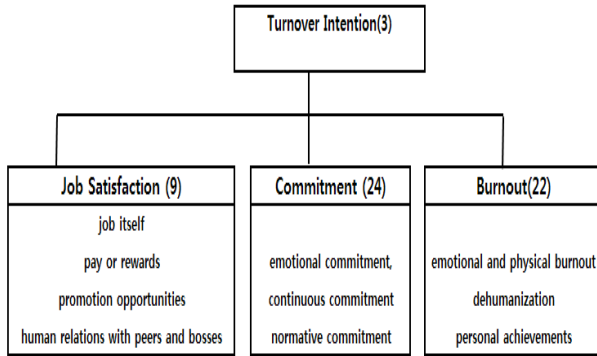


Fig. 1 Evaluation Model of Turnover Intention

3. Key Concepts about Trial Models to Evaluate Turnover Intention

3.1 Turnover Intention

As turnover intentions play a role as a preceding variable to effectively predict turnover behaviors, it has been emphasized as a substitution concept for turnover behaviors which tend to be considered as one of the performance variables[8].

Turnover intentions, implying an intention to voluntarily leave organizations, can be divided into two categories, voluntary turnover and non-voluntary intention. This study primarily deals with voluntary turnover intentions. Questionnaires for this purpose consist of 3 items making use of Likert 5-point scales.

3.2 Job Satisfaction(A)

Locke's definition about job satisfaction is widely accepted with regard to what job satisfaction is. He defines job satisfaction as a pleasant and positive affective state resulting from job evaluation. Job satisfaction can be assessed by examining such multi-dimensional characteristics as job itself, pay, promotion opportunities, and human relations. In order to measure job satisfaction, we used an instrument developed by Prince and Mueller, which consists of Liker 5-point scale [9].

3.3 Organizational commitment(B)

Organizational commitment involves such three concepts as employees' trust on organizational goals and values, strong desires to serve for the organization, firm intentions to stay for their organization as a member. For this study,

we made use of the 5-point scale developed by Mowdays and his associates[10].

3.4 Burnout(C)

Burnout is a long-term and complex response which results from the unresolvable stress experienced by employees. Burnout can be seen as an important job-related syndromes responding to the stress experienced by such professional human-service providers as nurses, social workers, clinical psychologists. Burnout can occur at the final stage where employee can not resolve the stress that could be escalated into the marginal level. This study make use of the Maslach Burnout Inventory (MBI) developed by Maslach and Jackson. This scale consists of three sub-scales, that is, emotional and physical burnout, dehumanization, and personal achievements[11].

4. Multiple Regression Analyses about Turnover Intention

Table 1. Multiple Regression Analyses about Turnover Intention

	Unstandardized Coefficient	standardized Coefficient	t
Job Satisfaction	-0.211	-0.211*	-1.925
Commitment	-0.401	-0.431***	-7.964
Burnout	0.195	0.193*	1.275
R ²	0.303		
Adjusted R2	0.294		
F	35.434		

*P<0.05, ***p<0.001

Table 1 contains the results of multiple regression analyses dealing with turnover intentions. They suggest that job satisfaction, organizational commitment, and burnout turns out to have a statistically significant reflations with turnover intentions. In other word, the higher the level of job satisfaction and organizational commitment, the lower the level of turnover intentions, and the higher the level of burnout, the higher the level of turnover intentions. In particular, our investigation reveals that organizational commitment tends to be a more important variable than other variables.

5. Pattern Analyses about Turnover Intention

Our fuzzy ID3 evaluations of 331 data reports its results in Table 3. We applied fuzzy ID3 algorithm to the evaluations of turnover intention by dividing it into two categories[12].

Table 2. Evaluation Data of Turnover Intention

No	A	B	C	CLASS
1	24	55	65	L
2	20	60	69	L
3	26	60	56	H
4	27	70	62	L
5	26	62	57	L
6	31	86	48	H
7	28	69	54	H
8	33	78	55	H
9	28	77	64	L
10	29	66	66	H
11	22	71	61	L
12	24	75	51	L
13	32	84	50	L
14	36	72	52	H
15	33	73	41	H
16	36	78	76	H
17	33	86	53	H
18	18	66	68	H
19	32	86	50	L
:	:	:	:	:
316	26	76	63	L
317	29	64	56	H
318	26	57	69	H
319	17	77	59	H
320	18	66	68	H
321	36	73	76	H
322	18	66	68	L
323	32	86	71	L
324	36	91	52	H
325	33	86	53	H
326	28	84	74	H
327	25	64	67	H
328	24	72	68	L
329	32	83	58	L
330	37	74	41	L
331	22	83	71	L

Table 3. Grade of Turnover Intention

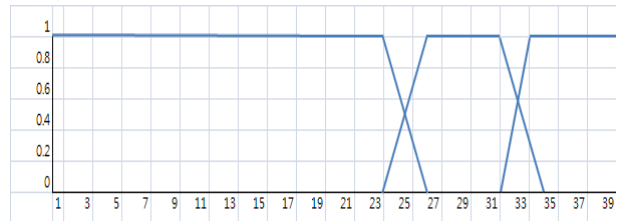
Grade	Definition
H	Turnover Intention Hight
L	Turnover Intention Low

Table 4 expresses the virtual values and summation of membership with regard to the 4 points which implies turnover intention of 331 social worker's. This derives from the values of fuzzy sets of turnover intentions which have been obtained from expert's professional knowledge.

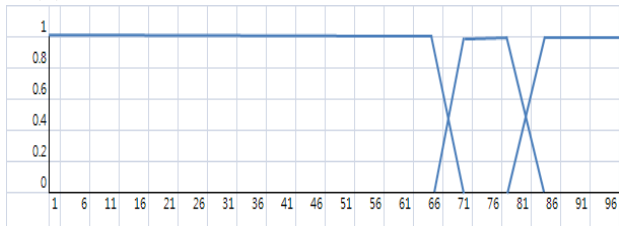
Table 4. Fuzzy Sets of Job Satisfaction, Organizational Commitment, and Burnout

		1 point		2 point		3 point		4 point	
		point	membership function values	point	membership function values	point	membership function values	point	membership function values
A	B	31	0	32.5	0.5	34	1	39	1
	M	23	0	26	1	31	1	34	0
	S	0	1	0	1	23	1	26	0
E	B	77	0	80.5	0.5	84	1	96	1
	M	65	0	70	1	77	1	84	0
	S	0	1	0	1	65	1	70	0
C	B	77	0	88	0.5	99	1	110	1
	M	32	0	55	1	77	1	99	0
	S	0	1	0	1	32	1	57	0

(A)



(B)



(C)

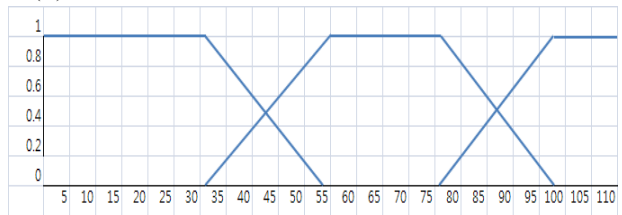


Fig. 2 Fuzzy Sets of Turnover Intention Model

After making use of fuzzy ID3 algorithm, we can obtain the following results based on Table 3 and Table 4.

- (B,BIG [p:99.972])
-> L (L:0.83, H:0.17)
- (B,MEDIUM [p:99.972])
(A,BIG [p:99.972])
(C,MEDIUM [p:2.683])

- > LH (L:0.63, H:0.37)
- 3. (B,MEDIUM [p:99.972])
(A,BIG [p:99.972])
(C,SMALL [p:2.683])
-> LH (L:0.76, H:0.24)
- 4. (B,MEDIUM [p:99.972])
(A,MEDIUM [p:99.972])
(C,MEDIUM [p:66.077])
-> LH (L:0.48, H:0.52)
- 5. (B,MEDIUM [p:99.972])
(A,MEDIUM [p:99.972])
(C,SMALL [p:66.077])
-> LH (L:0.61, H:0.39)
- 6. (B,MEDIUM [p:99.972])
(A,SMALL [p:99.972])
(C,BIG [p:99.972])
-> H (L:0.00, H:1.00)
- 7. (B,MEDIUM [p:99.972])
(A,SMALL [p:99.972])
(C,MEDIUM [p:99.972])
-> LH (L:0.41, H:0.59)
- 8. (B,MEDIUM [p:99.972])
(A,SMALL [p:99.972])
(C,SMALL [p:99.972])
-> H (L:0.00, H:1.00)
- 9. (B,SMALL [p:99.972])
(A,BIG [p:3.942])
(C,MEDIUM [p:99.972])
-> LH (L:0.56, H:0.44)
- 10. (B,SMALL [p:99.972])
(A,BIG [p:3.942])
(C,SMALL [p:99.972])
-> LH (L:0.50, H:0.50)
- 11. (B,MEDIUM [p:99.972])
(A,SMALL [p:99.972])
(C,BIG [p:99.972])
-> H (L:0.00, H:1.00)
- 12. (B,SMALL [p:99.972])
(A,MEDIUM [p:99.972])
(C,BIG [p:99.972])
-> LH (L:0.35, H:0.65)

- 13. (B,SMALL [p:99.972])
(A,MEDIUM [p:3.942])
(C,SMALL [p:99.972])
-> LH (L:0.57, H:0.43)
- 14. (B,SMALL [p:99.972])
(A,SMALL [p:3.942])

-> H (L:0.15, H:0.85)

About our if-then fuzzy rule, we can obtain the following decision-making trees explained in Figure 3 which can be applied to the field situation of social welfare.

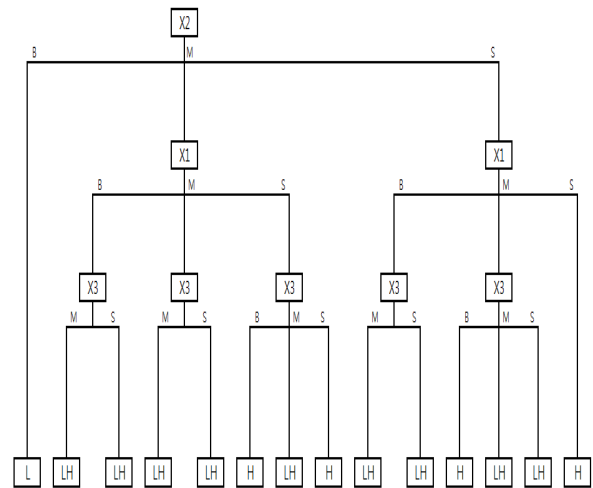


Fig. 3 Decision Tree

The results classifying the data in Table 2, which results from Figure 3, have been expressed in Table 5. Table 5 recognizes 245 variables out of 321, the recognition ratio of 74% and misrecognizes 86 variables, the misrecognition ratio of 26%.

Table 5. Recognition Ratio of Fuzzy ID3

	No. of recognition	No. of mis-recognition	Total
No. of social workers	245	86	331
ratio	74%	26%	100%

5. Conclusion

Social worker's turnover intention is an important variable from the perspective of human resource management. It

has been widely recognized that, because of poor working conditions, social workers' turnover intentions are much stronger compared to workers' intentions employed at different sectors. As a result of our sincere consideration about this problem, we sought to analyse their real effects.

To serve this purpose, we employed fuzzy ID3 to perform pattern analyses. By doing so, we sought to obtain specific rules with regard to the evaluation of social worker's turnover intentions and show the structure through decision making tree. As a result, we came to understand that the number of rules is 14 and the recognition ratio reaches 74%

The regression results show us that social worker's turnover intention is affected by organizational commitment, job satisfaction, and burnout. In particular, organizational commitment turns out to be a more important variable since its regression coefficient reaches -0.41.

The parrot analyses based on fuzzy ID3 indicate that if organizational commitment improves, job satisfaction (associated with promotion opportunity, reward, human relations with peers and bosses) increases and turnover intentions also decrease even if burnout (which results from job stress) deteriorates.

This study seems to suggest that organizational commitment is more important variable rather than job satisfaction and burnout. In this sense, this study seem to imply that social welfare organization should reconsider the significance of such organization-wide variables as organizational relations and attitudes rather than job satisfaction and job stress which are specifically associated job environments.

This study sought to indirectly investigate employee's turnover intentions rather than directly observing turnover behaviors. Even if we can agree that turnover intention is the strongest predictor of turnover behavior, the future study need to deal with the longitudinal and real world data dealing with employees' real turnover behaviors.

References

- [1] Powel and R.O. York, "Turnover in county public welfare agencies," *Journal of Applied Social Sciences*, vol.23, no.2, pp. 111-127, 1992.
- [2] H. K. Kang and S. Y. Yoon, "An Analysis of Human Resource Demands and Supplies for Social Workers and Its Policy-Wise Implications," *Health and Social Welfare Review*, vol.12, no.2, 2001.
- [3] H. A. Kang, C. R. Nho, E. M. Park and H. R. Shin, "The Relationships among Work Stress, Burnout, and Turnover Intentions of Child Welfare Employees," *Korean Journal of Social Welfare*, vol.60, no.3, pp. 107-127, 2008.
- [4] S. H. Kim, "A Causal Model of Social Workers' Turnover Intentions," *Social Welfare Research*, vol. 10, pp. 353-381, 1997.

- [5] K .W. Um and I. A. Park, "A study on the Effects of Social Worker's Institution Type, Wage Level and Job satisfaction on Their Turnover Intention," *Korean Journal of Social Welfare Research*, vol.16, pp. 105-124, 2007.
- [6] H. M. Yoon, "The Role of Job Stress, Personal Attribute, and Coping Strategy in the Processes of Predicting Job Satisfaction and Turnover Intentions," *Social Welfare Research*, vol.28, pp. 107-125, 1996.
- [7] J. S. Lee and M. H. Kim, "The Impact on the Intension of Turnover by Organizational Commitment Levels of Social Worker," *Korean Journal of Social Welfare*, vol.17, no.3, pp. 761-784, 2005.
- [8] S. P. Brown and R. A. Peterson, "Antecedents and Consequences of Salesperson Job Satisfaction," *Journal of Marketing Research*, vol.30, pp. 220-240, 1993.
- [9] J. L. Price and C. W. Mueller, "A Causal Model of Turnover for Nurse," *Academy of Management Journal*, vol.24, 1986.
- [10] R. T. Moday, R. M. Steers and L. W. Porter, "The Measurement of Organizational Commitment," *Journal of Vocational Behavior*, vol.15, pp. 252-270, 1979.
- [11] C. Maslach and M. Jackson, "The measurement of experienced burnout," *Journal of Occupational Behavior*, vol.2, pp. 99-113, 1981.
- [12] I. Hayashi, T. Maeda, J. Ozawa, "A Proposal of Fuzzy ID3 with Ability of Tuning for AND Connectives," *Journal of Japan Society for Fuzzy Theory and Systems*, vol.11, no.4, pp. 677-683, 1999.



Yun-Jeong Jang received the B.S. degree in industrial welfare from Daegu University, Daegu, Korea in 1990 and the M.S. and the Ph.D. degrees in social welfare from Osaka Prefecture University, Osaka, Japan in 2004 and 2008. She is currently a Full-Time Lecturer in the Department of Social Welfare, Kyungnam University, Korea. Her current research interests include social welfare and fuzzy theory.