

Development of a Model to Predict the Employment Status of Women Pharmacists

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The purpose of this study was to develop a model that could predict the employment status of women pharmacists. The objective of the study was to provide information that could be used by pharmacy managers, educators, and women to better understand work and family factors that influence the employment status of women pharmacists. Questionnaires were mailed to 450 women pharmacists registered in the state of Ohio. Two hundred and ninety-one women (65 percent) indicated their level of intrinsic and extrinsic job satisfaction, satisfaction with scheduling, satisfaction/availability of child care and sick child care, satisfaction/availability of housekeeping services, family support, conflict, and organizational commitment. These data were analyzed using structural equation modeling which tested the fit of the data to the study model. The results showed that the data did not fit the study model and that demographic data should also be included in the model

INTRODUCTION

More women than ever before are studying and practicing pharmacy in America. In the United States, female pharmacy students outnumbered males in pharmacy school enrollment beginning with the 1982-1983 academic year, and in the 1990-1991 school year, 62.4 percent of all pharmacy students were female(1). A growing number of women studying and practicing pharmacy has given the perception of being related to a possible pharmacist shortage. Kirk contends that "one of the problems pharmacy faces today is that it has been promoted to women primarily on the basis of its being a good profession in which the women can work part-time while raising a family"(2). Schondelmeyer *et al.* reported that women accounted for 54.1 percent of part-time pharmacists, 57.1 percent of unemployed pharmacists, and only 74 percent of the women worked full-time while 91 percent of the men had full-time positions. However, only 28 percent of the total pharmacy work force in 1988 consisted of women(3). Furthermore, Knapp *et al.* surveyed 3,300 living graduates of a school of pharmacy in the western United States. They found that women had lower rates of work participation in all age groups greater than 23, 36.4 percent of the responding women worked less than full-time, and of the women who separated from the pharmacy work force, 22.6 percent did so due to children(4). Thus, the pharmacy profession will experience new challenges as the demographics of practitioners change.

The purpose of this investigation was to develop and test a model that could predict the employment status of women pharmacists. Information from this model could then identify work and family factors that influence a woman pharmacist's employment status. This knowledge could lead to the development of strategies for career planning as well as recruitment and retention of women pharmacists.

BACKGROUND

The literature indicates that the individual constructs of work factors(5-7), organizational commitment(8), family factors(9,10), conflict between work and family(11,12), and employment status(3,4) have been studied as single entities. These constructs were used in this study to examine relationships between these constructs and employment status as well as develop a model that would predict the employment status of women pharmacists. This study used work factors, organizational commitment, conflict, and family factors as independent variables in an attempt to predict the dependent variable, employment status.

This study was based on a model developed by Gaertner to predict the employment status (unemployed or employed) of nurses by looking at work and family factors. She hypothesized that satisfaction with work would have a positive impact on organizational commitment which would in turn have a positive impact on employment status. She further felt that family responsibilities would have a negative impact on employment status. She found that the most satisfying aspects of nursing involve working with other nurses and caring for patients. However, satisfaction with hours and scheduling negatively impacted employment status. In terms of family responsibility, presence of young children and marital status negatively impacted employment status. Also, there was great dissatisfaction with the availability of child care. Gaertner's study did not include a conflict factor (13). However, Kopelman, Greenhaus, and Connolly introduced the possibility of conflict in relation to work and family satisfaction as previously discussed (11). Therefore, Gaertner's model was modified to include conflict between work and family issues.

Table I. Description of study survey instrument and reliability (Cronbach's alpha)

Variable	Number of items	Scaling	Scores (min.-max.)	Cronbach's alpha
Extrinsic job satisfaction	6	1-5	6-30	0.80
Intrinsic job satisfaction	12	1-5	12-60	0.85
Overall job satisfaction	20	1-5	20-100	0.89
Organizational commitment	15	1-7	15-10	0.92
Scheduling satisfaction	6	1-7	6-42	0.89
Satisfaction with available child care	6	1-7	6-42	0.90
Satisfaction with available sick child care	6	1-7	6-42	0.88
Satisfaction with available housekeeping services	6	1-7	6-42	0.93
Family support	6	1-7	6-42	0.96
Work conflict	8	1-5	8-40	0.81
Family conflict	8	1-5	8-40	0.83
Interrole conflict	8	1-5	8-40	0.89

METHODS

Work factors were defined in this study as aspects of the job that could influence employment status. While various work factors have been defined in the literature, this study concentrated on job satisfaction as the work factors component of the model. Satisfaction with work factors was operationally defined as the pharmacist's score on the Minnesota Satisfaction Questionnaire-Short-Form (MSQ-SF) which measures extrinsic (job context), intrinsic (job content), and overall job satisfaction using twenty different facets of job satisfaction except satisfaction with scheduling. Opportunities for advancement, recognition, and variety are examples of items in the MSQ-SF(14). A semantic differential scale was specifically developed for this study to measure satisfaction with scheduling. A pharmacist's satisfaction with scheduling was operationally defined as the pharmacist's summated score on this scale. The number of items, scaling, and range of scores are presented in Table I. Satisfaction with scheduling was included due to the varied shifts that pharmacists are required to work 365 days per year. Organizational commitment as defined by Gaither and Mason involves an "attitude with three components: (i) a strong belief in and acceptance of the organization's goals; (ii) willingness to exert considerable effort on behalf of the organization; and (iii) a desire to stay with the organization"(8). The operational definition of commitment for this study was the pharmacist's score on Porter and Smith's Organizational Commitment Questionnaire (OCQ) (15). Six items are negatively phrased and scored in reverse to avoid acquiescence response. Examples of items from the OCQ include: "I feel very little loyalty to this organization" and "I really care about the fate of this organization" (Table I).

Family factors were defined as areas of family responsibility that could influence the employment status of women pharmacists. Family factors included in this study were housekeeping tasks, child care, sick child care, and family support which were operationally defined as the pharmacist's score on semantic differential scales developed specifically for this study (see Table I). Kopelman, Greenhaus, and Connolly offer definitions of work conflict, family conflict, and interrole conflict. Work conflict is defined as the "extent to which a person experiences incompatible role pressures

within the work domain. The incompatibility may stem from multiple role senders, one role sender, or a lack of fit between the focal person and role requirements." Family conflict is defined as the "extent to which a person experiences multiple role senders, one role sender, or a lack of fit between the focal person and role requirements." Inter-role conflict is defined as the "extent to which a person experiences pressures within one role that are incompatible with the pressures that arise within another role." Work, family, and interrole conflict were operationally defined as the pharmacist's score on a conflict scale developed by Kopelman, Greenhaus, and Connolly(11). Examples of this instrument include: "At work I am not able to be myself" and "My work takes up time that I'd like to spend with my family" (see Table I). Employment status was determined by the average number of hours a respondent worked per week. Demographic information other than gender was not included in the study model because employers have little control over personal characteristics of employees. Only factors that employers could use to facilitate employment status were incorporated into the study model.

A systematic random sample of 450 women pharmacists was selected from the current list of registered pharmacists in the state of Ohio. Questionnaire packets containing a cover letter, tea bag, self-addressed postage-paid return envelope, and the questionnaire were mailed. Four weeks after the initial mailing, a reminder postcard was mailed to all nonrespondents asking them to return the survey. A follow-up survey packet was mailed on May 13, 1993, six weeks after the original mailing. This packet contained a copy of the questionnaire, tea bag, self-addressed postage-paid return envelope, and a second cover letter.

Pearson product-moment correlation coefficients were used to evaluate the relationship between extrinsic job satisfaction, intrinsic job satisfaction, overall job satisfaction, satisfaction with scheduling, organizational commitment, satisfaction/availability of child care, satisfaction/availability of sick child care, satisfaction/availability of housekeeping services, family support, work conflict, family conflict, and interrole conflict with employment. The study model was tested using structural equation modeling (EQS software, Los Angeles, CA). The fit of the data to the study

Table II. Respondent characteristics (n=291)

Characteristic	Mean (SD)	Pearson r (P value)	Number (percent)
Percent of family income contributed by the woman	59.05 (23.23)	0.57 (0.0001)	—
Age	36.81 (9.36)	-0.12 (0.04)	—
Years in practice	12.35 (9.18)	-0.13 (0.03)	—
Years in current position	6.09 (5.86)	-0.09 (0.14)	—
Number of previous positions	2.49 (3.06)	-0.11 (0.10)	—
Career interruptions of greater than one month	1.12 (1.46)	-0.43(0.0001)	—
Hours per week	37.1 (13.1)	—	—
Marital Status			
Married	—	—	281 (75)
Single (no partner)	—	—	34(12)
Single (partner)	—	—	12(4)
Widowed	—	—	3(1)
Divorced	—	—	24(8)
Number of Children		-0.48 (0.0001)	—
No children	—	—	145 (50)
One child	—	—	50 (17)
Two children	—	—	66 (23)
Three children	—	—	19(7)
Four or more children	—	—	11(3)

model was tested with the Chi square goodness of fit test and the Bentler-Bonnett normed fit index where zero equals no fit while one indicates a perfect fit(16).

RESULTS

Sixty-five percent (n=291) of the women pharmacists sampled returned usable questionnaires. Respondents' characteristics and Pearson product-moment correlation coefficients between the characteristic and employment status are provided in Table II. An important demographic factor that was included in data collection was age which impacts the presence of children and child care issues. Information regarding estimation of age cohorts of female pharmacists in the United States is available from The Bureau of Health Professions (BHP)¹. This bureau estimated that 86.5 percent of women pharmacists in 1993 in the United States would be between the ages of 20 and 44 while 85 percent of the women in this study were of comparable ages. Thus, the estimation of BHP and the actual ages of women pharmacists in this study were similar in the childbearing and child caring years of a woman's life.

Some of the respondents' characteristics had a significant relationship with employment status. For example, the percent of income contributed by the woman pharmacist to the family was substantially associated with employment status. Further, the number of children and the number of career interruptions had negative relationships with employment status. Other significant negative correlations included age of respondent, years in practice, and previous

¹ Personal communication with Capt. Fred Paavola, Chief, Allied and Associated Health Branch, Parklawn Building, 5600 Fishers Lane, Rockville MD, 20857, Nov. 11, 1994.

positions with employment status.

Respondents' scores on the MSQ-SF, OCQ, conflict scales, and semantic differential scales are provided in Table II. Pearson product-moment correlation coefficients between respondents' scores and employment status are also provided in Table III.

Reliability of each scale was calculated with Cronbach's coefficient alpha. Each scale in the questionnaire had coefficient alpha values of 0.8 or more. This indicated good internal consistency of these scales. The coefficient alpha values are presented in Table I.

The women pharmacists' scores on the MSQ-SF indicated that they had an average level of extrinsic and overall job satisfaction and a high level of intrinsic job satisfaction. The respondents were fairly satisfied with their work schedule. Pearson product-moment correlation coefficients showed that extrinsic job satisfaction, intrinsic job satisfaction, overall job satisfaction, and satisfaction with scheduling were not significantly correlated with employment status.

In terms of organizational commitment, Gaither and Mason reported a mean OCQ score of 76.8 ± 19.2 for all pharmacists, a mean score of 77.8 ± 19.4 for males, and a 73.9 ± 18.4 mean score for the 232 women pharmacists in their study(8). These researchers concluded that pharmacists had a moderate amount of organizational commitment. Likewise, the women pharmacists in this study had a moderate amount of organizational commitment. The correlation coefficient between organizational commitment and employment status indicated there was no significant relationship.

The women in the study indicated that they were fairly satisfied with their work schedules, somewhat satisfied with available child care, very slightly satisfied with sick child care, fairly satisfied with available housekeeping services, and the women reported moderately supportive families. Correlation coefficients between these family factors and employment status indicated there were no significant relationships.

In terms of conflict, the women in this study experienced a low to moderate level of work conflict, a moderate level of interrole conflict, and a low to moderate level of family conflict. The correlation coefficients between work conflict and family conflict with employment status were not significantly different than zero. However, the correlation coefficient between interrole conflict and employment status indicated a moderate relationship between the two variables.

In terms of the study model, the EQS system identified the covariance matrix (Table IV) and the following structural equation for the dependent variable:

$$\text{Hours} = 0.100 (\text{OC}) + 0.638 (\text{CON}) + 0.500 (\text{WF}) - 0.112 (\text{HE}) + 0.958 (\text{E1})$$

where:

hours = employment status measured as average number of hours worked per week

OC = organizational commitment

CON = conflict

WF = work factors

FF = family factors

E1 = residual associated with hours

This equation explained 8.2 percent of the variance in the model. Figure 1 depicts the calculated path coefficients for the entire study model.

Table III. Pharmacists' mean scores on measured study variables

Variable	n	Mean score	Range	Pearson r (P value)
Extrinsic job satisfaction	282	19.4 ±4.7	6-30	0.004(0.95)
Intrinsic job satisfaction	277	47.4±6.5	17-60	0.03 (0.66)
Overall job satisfaction	269	75.0±10.9	43-100	0.02 (0.73)
Organizational commitment	285	72.2 ±17.1	21-104	0.07 (0.25)
Scheduling satisfaction	288	33.8 ±6.7	14-42	-0.05 (0.41)
Availability/satisfaction with child care	213	29.9 ± 7.0	11-42	0.04 (0.59)
Availability/satisfaction with sick child care	182	25.3 ± 6.7	6-42	0.002 (0.98)
Availability/satisfaction with housekeeping services	237	31.6±6.7	8-42	0.05 (0.47)
Family support	278	36.0 ±6.9	6-42	-0.02 (0.80)
Work conflict	284	19.5 ±5.9	8-37	0.02 (0.70)
Family conflict	263	18.8 ±5.9	8-35	0.06(0.31)
Interrole conflict	272	24.5 + 7.3	8-40	0.36(0.0001)

Table IV. Model covariance matrix

Variable ³	Hours	US	EJS	OC	SS	DC	SIC	HK	FS	WC	FC	IC	WF	CON	FF
Hours	175.8														
US	0.5	43.6													
EJS	0.4	18.3	22.3												
OC	9.5	63.8	52.0	285.2											
SS	0.4	19.9	16.2	56.4	45.5										
DC	2.2	0.0	0.0	0.0	0.0	37.9									
SIC	1.2	0.0	0.0	0.0	0.0	6.1	30.5								
HK	2.6	0.0	0.0	0.0	0.0	13.4	7.3	37.6							
FS	1.5	0.0	0.0	0.0	0.0	7.7	4.2	9.3	45.7						
WC	7.3	-21.7	-17.7	-61.8	-19.2	0.0	0.0	0.0	0.0	-18.6					
FC	2.4	-7.1	-5.8	-20.1	-6.3	-0.5	-0.3	-0.7	-0.4	8.5	32.5				
IC	5.3	-15.8	-12.8	-44.8	-13.9	-1.2	-0.7	-1.5	-0.8	19.0	6.2	51.6			
WF	0.4	19.2	15.6	54.6	17.0	0.0	0.0	0.0	0.0	-18.6	-6.1	-13.5	16.4		
CON	2.0	-5.6	-4.5	-15.8	-4.9	-0.4	-0.2	-0.5	-0.3	6.7	2.2	4.9	-4.7	1.7	
FF	-0.3	0.0	0.0	0.0	0.0	-1.6	-0.8	-1.9	-1.1	0.2	0.1	0.2	0.0	0.1	0.2

^a Legend: EJS = extrinsic job satisfaction; IJS = intrinsic job satisfaction; SS = satisfaction with scheduling; DC = satisfaction/availability of child care; SIC = satisfaction/availability of sick child care; HK = satisfaction/availability of housekeeping services; FS = family support; WC = work conflict; FC = family conflict; IC = interrole conflict; e = error term; D = disturbance term

The Chi square goodness of fit test resulted in a calculated Chi square value of 210.89 (46 degrees of freedom; $P < 0.001$) which was compared to a critical Chi square value of 55.8 (40 degrees of freedom). Therefore, the null hypothesis was rejected, indicating that the data did not fit the model. Also, the Bentler-Bonnet normed fit index of 0.798 did not indicate good fit of the data to the study model (values above 0.9 represent good fit).

Path coefficients indicate the direct effect of one variable upon another in a manner similar to Beta weights in regression analysis. The structural equation for the dependent variable hours was derived using the path coefficients from pathways directly leading to hours. Path coefficients or pathways not significant at an alpha level of 0.05 were identified by the Wald test as possible deletions from the model to allow better fit. The Wald test identified the following five pathways that could be deleted from the model: (i) organizational commitment → hours; (ii) conflict → hours; (iii) family factors → hours; (iv) work factors → hours; and (v) family factors → conflict. However, four of these five pathways involved employment

status (hours), the dependent study variable. In other words, if every parameter involving employment status were dropped from the model, the data would fit the model better. Essentially, this action would delete employment status from the study model. Thus, no parameters were deleted and the structure equation modeling was not analyzed again as it would not accomplish the purpose of the study. In addition to deleting pathways, the Lagrange multiplier test identified three relationships that could be added to the model in order to improve the fit. These involved the following pathways: (i) work conflict → work factors; (ii) family support → conflict; and (iii) work factors → family factors. While results of these additions to the model might be interesting, there was no reason to run the EQS program again due to the deletions suggested by the Wald test.

DISCUSSION/CONCLUSION

Some demographic variables had more impact on employment status than the variables included in the model. These demographic variables included percent of income contributed to the family by the woman pharmacist, number of

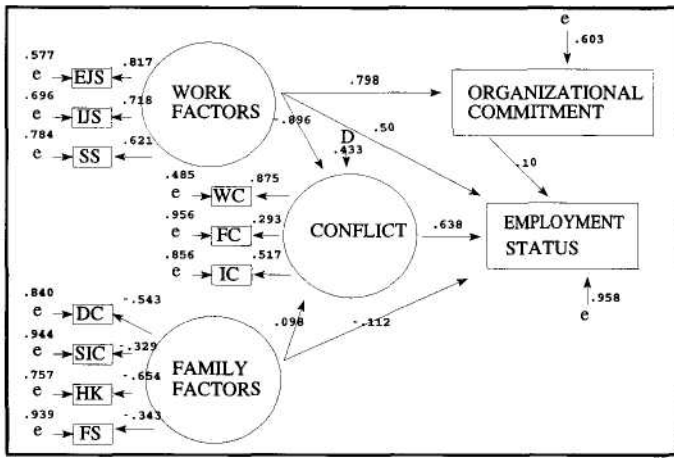


Fig. 1. Standardized solution study model. Legend: IJS = Intrinsic job satisfaction; EJS = Extrinsic job satisfaction; OC = Organizational commitment; SS = Satisfaction with scheduling; DC = Satisfaction/availability of child care; SIC = Satisfaction/availability of sick child care; HK = Satisfaction/availability of housekeeping services; FS = Family support; WC = Work conflict; FC = Family conflict; IC=Interrole;conflict; WF= Work factors; CON= Conflict; FF= Family factors.

children present in the household, number of career interruptions, age of the respondent, years in practice, and previous positions. Demographic variables were not included in the model because they are not under the control of managers or academic advisors. In other words, employment advisors cannot impact the employment status of women pharmacists through change of demographic variables.

The data did not fit the study model and deletion of the parameters suggested by the Wald test would have deleted employment status from the study model. Thus, the study model did not predict the employment status of women pharmacists and deleting employment status from the study model would have contradicted the propose of the investigation. This model was based on ideas supported in the literature that the number of hours that a woman works are influenced by job satisfaction, satisfaction with scheduling, organizational commitment, satisfaction and availability of child care, sick child care, housekeeping services, and family support. These ideas did not hold true in this group of women pharmacists as these variables did not correlate with employment status.

The fact that the data did not fit the study model has important implications for management and women pharmacists. For example, the employment status of women pharmacists was not impacted by the availability of satisfactory child care or sick child care. Furthermore, work and family conflict did not have a negative effect on employment status. Plus, these women pharmacists were relatively satisfied with their employment and had a moderate level of organizational commitment. Thus, employers of women pharmacists may not need to be so concerned with a possible negative impact of having women as employees as indicated by Ivey(17).

Limitations of this study include that the study is generalizable only to women pharmacists registered in the state of

Ohio. Also, women may have answered items involving the family in a socially desirable manner. For instance, women in this study indicated that they did not experience a great deal of family conflict and that they had supportive families. Women may not have wanted to state negative feelings about their families. If this is the case, the covariances between family and interrole conflict with family factors would be impacted. Inflated family factor values along with deflated conflict values would produce smaller covariance values. Furthermore, fewer women answered scales regarding child care and sick child care.

Lastly, as our society continues to evolve, it is possible that as more women venture into the work place, men will become more active within the household. If this occurs, the employment status of men will also require investigation in terms of work factors, family factors, and conflict between the two. Thus, the search for predictors of employment status should continue so that managers and employment advisors can facilitate the employment of women pharmacists.

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