

Estimation of Pharmacy Students' Expected Job Satisfaction Functions: Inter-Gender Differences

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This paper seeks to formulate and estimate, using ordinary least squares, expected job satisfaction functions for male and female pharmacy students immediately prior to entering rotations or internship. Two issues are addressed: Whether or not expected job satisfaction functions can be estimated empirically and, if so, the extent to which inter-gender differences exist in the coefficients of the explanatory variables. The data consist of 60 men and 93 women enrolled at Nova Southeastern University. Expected level of job satisfaction from first job as pharmacist is measured along a one-to-ten scale, higher numbers indicating greater anticipated satisfaction. It is postulated to be a linear function of expected starting salary, grade average, age, preferred work setting, and ethnicity. For these variables least-squares estimates and their standard errors, levels of significance, and elasticities are developed separately for men and women, with statistically significant F ratios and relatively high Ft^2 values. The empirical evidence shows that expected job satisfaction functions and corresponding elasticities can be estimated successfully for male and female pharmacy students. The evidence also suggests that the rapidly changing gender composition in the pharmacy profession may have eliminated or altered inter-gender differences in outlooks and expectations prevalent until recently. While grades are a stronger determinant of job satisfaction for men than for women, age is a significant predictor for women but not for men. Surprisingly, women derive more expected satisfaction out of expected initial salary and out of potential retail-work setting than do men, which contradicts the traditional argument of greater male than female concern for income and business aspects of pharmacy.

INTRODUCTION

Nearly a quarter (23.8 percent) of full-time pharmacists in the United States change jobs within a three-year period, and more than a third (35.7 percent) change jobs within a five-year period¹. Rates in excess of frictional staff turnover¹ can lead to substantial long-term institutional expenditures on identifying, hiring, and training replacements for employees who move onto other positions or firms. Thus, policies consistent with a rational and efficient allocation of resources should include elements which reduce turnover, especially factors wholly or partly under the control of employers. This is the realm of job satisfaction.

Pharmacists, as well as other professionals, change jobs for two kinds of reasons: (i) expulsion factors, brought about by discontentment with their work or employer; and/or (ii) attraction factors resulting from availability of a seemingly more favorable position or employer. Examples of the first kind are stressful work environments, burnout, and inflexible schedules, while better pay and benefits, autonomy, and advancement opportunities are examples of the second kind. In both instances job satisfaction is of the essence: Dissatisfaction with one's current position as an expelling force vs. the perception of better conditions elsewhere as a magnet force.

Workers experience job satisfaction or dissatisfaction when they achieve, or fail to achieve, whatever objectives they deem important in their work^(2,3). Satisfaction/dissatisfaction determinants may be intrinsic or extrinsic. Intrinsic determi-

nants pertain to the nature and activities of a position (*i.e.*, intellectual stimulation, chance to help patients, and feeling of accomplishment), whereas extrinsic determinants focus on other people or external considerations such as job security and interaction with supervisors or coworkers⁽⁴⁻⁶⁾.

Different people are likely to respond differently to a given set of stimuli offered by a position or job situation. Some may be primarily concerned with maximizing salary and benefits regardless of nature of activity or inconveniences posed by stress, rigid company policies, etc., while others may be willing to trade off financial rewards for more pleasant working conditions, greater flexibility, or more challenging responsibilities. If these and other preferences are systematically related to employees' or potential employees' demographic and socioeconomic characteristics, they would become manifest in the configuration of an empirical job satisfaction function in which attraction factors exhibit positive coefficients and expulsion factors exhibit negative coefficients.

Both the theoretical formulation and empirical measurement of a job satisfaction function may vary by group. If

¹The frictional or natural staff turnover rate is the minimum rate of turnover expected in a type of job or an institution. It measures, within a period of time, usually a year, the percent of employees who leave their positions for reasons unrelated to job satisfaction or dissatisfaction (*i.e.*, death, injury, professional development, family relocation, promotion within the same institution, etc.).

turnover and job satisfaction are related, as some of the literature points out(7-10), a specific function may yield different estimates when it is applied to two or more groups. Such methodology is applicable when exploring inter-gender variations in turnover and opportunities in the labor market. For example, Schondelmeyer reports that, throughout the 1980s, relatively more female (66.9 percent) than male (48.8 percent) full-time pharmacists changed jobs at least once(1). The rapidly changing composition in the pharmacy profession make these variations especially important in the process of matching applicants' capabilities and expectations with the needs and constraints of available jobs(4,11,12).

Turner contends that job dissatisfaction occurs because of goal-expectation disparities between pharmacy education and pharmacy practice(13); that is, it requires an experiential ingredient which students, by their very nature, do not possess. Yet students can be asked to project the level of satisfaction anticipated from their first job as pharmacists, based on conditions expected to affect the job(14). These expectations often are realized after graduation(15); if female students expect to earn lower salaries or set their goals at relatively fewer management positions than their male peers, when they become pharmacists, inter-gender income and management disparities are likely to arise. Of course, the opposite also could be argued: Compared to their male counterparts, female students may expect less because they observe and acknowledge actual market disparities.

This paper seeks to formulate and estimate, using ordinary least squares, expected job satisfaction functions for male and female pharmacy students immediately prior to entering rotations or internship. After the coefficients of the explanatory variables are estimated, inter-gender differences in these coefficients are explored. The data consist of 153 students (60 men and 93 women) enrolled in the Fall 1995 and Fall 1996 semesters at Nova Southeastern University, one of three colleges conferring pharmacy degrees in Florida². Although this sample may not be fully representative of the universe of pharmacy students throughout the country, restricting the analysis to one institution obviates having to standardize student admission and promotion policies, practices, and outcomes by several universities, which would introduce a considerable source of distortion in the estimation process.

JOB SATISFACTION AND EXPLANATORY VARIABLES

Unlike similar studies in which job satisfaction is approximated as a composite indicator of other factors (16), expected level of job satisfaction is assessed here directly by students along a one-to-ten scale, higher numbers indicating greater anticipated satisfaction. This is a highly subjective variable. A one-to-ten scale is chosen because it encompasses an adequate and meaningful variation of response, broader than a Likert-type scale. Specifically, students are asked: "How satisfied do you expect to be with your first job as a pharmacist?" Table I shows response differences by gender of this and other variables.

When students are asked to estimate expected satisfaction, men and women show virtually identical levels. They also show very similar expected levels of income, contrary to the findings of Rascati, who reports that male students anticipate a higher starting salary than their female counterpart(17). Expected starting salary is distributed more uniformly for women than for men, perhaps because men's sources of income are relatively more heterogeneous. Income is included

Table I. Mean and standard deviation (in parentheses) of selected variables, by gender.

Variable	Gender	
	Men	Women
Number of observations	60	93
Expected level of job satisfaction (one-to-ten scale)	7.133 (2.037)	6.989 (1.707)
Expected salary (thousands of dollars)	58.858 (10.059)	58.156 (6.202)
Grade average (0-100 scale)	84.217* (4.164)	86.323* (4.775)
Age (years)	28.333** (4.603)	26.344** (4.957)
Enrolled in the BS Program (percentage)	0.417* (0.493)	0.215* (0.411)
Ethnic group (percentage composition)	1.000	1.000
Non-Hispanic White	0.700	0.591
African American	0.033	0.032
Hispanic	0.200	0.183
Asian origin	0.067**	0.194**

* Inter-gender difference statistically significant at $P < 0.01$.

**Inter-gender difference statistically significant at $P < 0.05$.

in the model as a determinant of job satisfaction because pay is one of the primary reason why most people go to school and work(18,19); as such, it is hypothesized to exert a positive effect on job satisfaction.

Another determinant of anticipated job satisfaction considered in this model is grade average. Higher grades in pharmacy school might be perceived by potential employers not only as a symbol of more specialized technical knowledge possessed by job applicants(20), but also as an indicator of ability to generate critical levels of commitment, effort, and success. Consequently, graduates with higher grades may be offered, and students with higher grades may be conditioned to expect, more attractive jobs which yield relatively greater levels of satisfaction than their less academically competitive peers. Furthermore, one might argue that students get better grades when they are committed more fully to their field of study, thus reflecting an intrinsic source of satisfaction. The data show that, on average, women obtain higher grades than men.

Age is the third determinant of expected job satisfaction analyzed here. Kong points out that, as workers get older, options for job mobility become increasingly limited because of family commitments, seniority, and a rising opportunity cost of feasible alternatives(21). If workers are not happy with the nature and activities of their job, mobility constraints may lead to dissatisfaction and frustration. If that is the case, job satisfaction could decline with age. Conversely, it might be argued that people who pursue their pharmacy degree at an older age are more motivated intrinsically than are younger students, and are likely to project relatively greater levels of satisfaction out of their anticipated professional experience. In line with the findings of other studies(11,17), in this study male students generally are older than female students.

²Although answering the survey questionnaire was not mandatory, virtually all students responded. Twenty-seven observation units were deleted because respondents are foreign students not eligible to work in the United States or do not intend to work after graduation. In addition, eighteen observation units were deleted because respondents failed to identify key variables such as gender, expected level of job satisfaction, grade average, age, or ethnic group.

Expected or preferred work setting, reflected in academic degree sought, is another explanatory variable of job satisfaction. Students seeking a BS degree tend to prefer working in retail pharmacies, whereas students seeking a PharmD generally show a preference for a hospital setting. Various studies indicate that although, on average, retail chain pharmacists earn higher salaries and better benefits, they are more discontent with their jobs vis-a-vis pharmacists practicing in other settings³(22-24). This phenomenon probably occurs because work pressures, brought about by high productivity demands in dispensing drugs, prevent them from getting involved in drug-related patient care nearly as much as they would like(2). The effect of work setting on expected job satisfaction acquires a new dimension when one considers that women, traditionally attracted to hospital pharmacy, remain under-represented in the retail sector(25,26). Yet recent studies have not been able to identify inter-gender differences in the setting in which pharmacists and students choose or prefer to practice(4,17). The empirical evidence here shows that relatively twice as many men as women are enrolled in the BS degree program.

Finally, ethnicity also is recognized as a potentially relevant variable in developing expected job satisfaction functions. Carvajal and Hardigan report that African American students expect to earn less income and experience lower levels of job satisfaction when compared to students from other ethnic groups. They also report that Hispanics and Asian Americans tend to exhibit less confidence than Non-Hispanic Whites in their ability to pass the Pharmacy Board exam and in the allocative function of the job market(14). In this study, almost two-thirds of the students are Non-Hispanic White. There are very few African Americans. Approximately one-fifth are Hispanic and one-seventh are of Asian origin, with a lot more Asian American women than Asian American men.

JOB SATISFACTION FUNCTIONS

The empirical equations estimated here interpret male and female pharmacy students' expected levels of job satisfaction as approximately linear functions⁴ of the variables discussed in the previous section: Expected starting salary, grades, age, preferred work setting, and ethnicity. Thus,

$$S_{ij} = \beta_{Y_i} Y_{ij} + \beta_{G_i} G_{ij} + \beta_{A_i} A_{ij} + \beta_{W_i} W_{ij} + \beta_{B_i} B_{ij} + \beta_{H_i} H_{ij} + \beta_{X_i} X_{ij} + u_{ij}$$

where

- S_{ij} is a one-to-ten scale of satisfaction (higher numbers indicating greater satisfaction) expected by the j th student of the i th gender from his/her first job as a pharmacist;
- Y_{ij} is the starting salary (in thousands of dollars) expected by the j th student of the i th gender from his/her first job as a pharmacist;
- G_{ij} is the self-reported grade average (along a 0-100 scale) of all courses taken by the j th student of the i th gender;
- A_{ij} is the age (in years) reported by the j th student of the i th gender;
- W_{ij} is a dummy variable for preferred work setting, receiving a value of one if the j th student of the i th gender is enrolled in the BS program, a value of zero otherwise;
- B_{ij} is a dummy variable for ethnicity, receiving a value of one if the j th student of the i th gender is African American, a value of zero otherwise;
- H_{ij} is a dummy variable for ethnicity, receiving a value of one

Table II. Estimates of least-squares coefficients, standard errors (in parentheses), levels of significance, and elasticities of pertinent variables, by gender.

Variable	Gender	
	Men	Women
Number of observations	60	93
Expected salary (Y_{ij})	0.0364*** (0.0209)	0.0443** (0.0191)
Elasticities	0.300	0.369
Grade average (G_{ij})	0.0706* (0.0215)	0.0323** (0.0142)
Elasticities	0.834	0.399
Age (A_{ij})	-0.0435 (0.0476)	0.0483*** (0.0287)
Elasticity	-	0.182
Enrolled in the BS Program (W_{ij})	0.7132*** (0.4010)	0.8572* (0.3514)
Ethnicity: African American (B_{ij})	-0.5231 (1.2348)	0.0967 (0.7919)
Ethnicity: Hispanic (H_{ij})	-0.0408 (0.5662)	0.6415*** (0.3843)
Ethnicity: Asian American (X_{ij})	-0.1429 (0.9160)	0.2622 (0.3808)
F statistic	2.509**	7.080*
R^2	0.284	0.331

*Coefficient statistically significant at the $P < 0.01$ level.

**Coefficient statistically significant at the $P < 0.05$ level.

***Coefficient statistically significant at the $P < 0.10$ level.

- if the j th student of the i th gender is Hispanic, a value of zero otherwise;
- X_{ij} is a dummy variable for ethnicity, receiving a value of one if the j th student of the i th gender is of Asian descent, a value of zero otherwise;
- U_{ij} is a normally, independently distributed stochastic term, with mean zero and variance σ^2 , of the j th student of the i th gender;
- β_{ij} ... β_{xi} are the least-squares coefficients of the i th gender being estimated; and where
- $i = 1, 2$ for men and women, respectively, and
- $j = 1, \dots, 60$ for men and $j = 1, \dots, 93$ for women

DISCUSSION

Least-squares estimates of the empirical model are presented and discussed along with their standard errors, levels of significance⁵, and elasticities of pertinent variables, are shown in Table II. The computed F values are significant beyond the 0.05 alpha level for men and the 0.01 level for women, and the R^2 values resemble those of similar cross-sectional studies related to job satisfaction and other topics(19,27,28).

The coefficients for the expected initial-salary variable are

³Not only do retail chain pharmacists earn higher levels of income than pharmacists practicing in other settings, but, in a recent study, pharmacy students planning to work in a retail chain setting expect a higher starting salary than students planning to work in a hospital or independent community setting (17).

⁴The linear function yields the most significant least-squares coefficients. Neither quadratic nor semilog transformations yield more significant estimates or increase R^2 .

⁵Statistical significance corresponding to 0.01, 0.05, and 0.10 alpha levels are indicated. In the social sciences the degree of control over explanatory variables usually is much less than in the natural sciences. Consequently, identification of 0.10 alpha levels of significance is not uncommon.

statistically significant and positive in both equations, pointing out that more expected income leads to greater expected satisfaction. Contrary to the reasoning by Lueptow, who argues that relatively more men than women regard income as a prime source of satisfaction(29), and Betz and O'Connell, who cite several works showing greater male concern for income and business aspects of pharmacy and female concern for the acquisition of special occupational skills and clinical applications(11), the empirical evidence of this study reveals that expected income possesses greater statistical significance, and generates more expected job satisfaction, for female than for male students. Yet the income elasticity values are similar for both genders.⁶ These values suggest a definite pattern of responsiveness by the student population: A 10 percent rise in expected earnings increases men's expected job satisfaction by 3.0 percent and women's expected job satisfaction by 3.7 percent.

The grade-average coefficients also are positive and statistically significant, lending support to the hypothesis that students with higher grades are conditioned to expect more attractive jobs, and consequently greater levels of satisfaction, than their less accomplished counterparts. Or perhaps their degree of commitment to the profession, evinced by their grade averages, automatically leads them to greater anticipated satisfaction of intrinsic nature. Whatever the link, expected job satisfaction is much more grade elastic for men than for women.

The age coefficient for female students is positive and significant, suggesting that older women project more intrinsic satisfaction out of their anticipated professional experience relative to younger women. Women's satisfaction responsiveness to changes in age, however, is mild, as the elasticity value is rather low. The age coefficient lacks statistical significance for men, perhaps because, as age increases, extrinsic rather than intrinsic factors become more important in determining job satisfaction(6). Since, in this sample, men are older than women, it may be that relatively more male than female students are in the transition age, thus contributing to the lack of significance of this variable for men.

The results reveal that students who opt for the BS degree, presumably those with an overall preference for working in a retail setting, anticipate a greater degree of satisfaction out of their first job as pharmacists than do their more clinically oriented counterparts seeking a PharmD degree. These expectations are not consistent with the lower levels of satisfaction actually reported by retail pharmacists vis-a-vis their peers in other work settings(22-24). Furthermore, the female-student coefficient is slightly higher than the male-student coefficient, meaning that women anticipate somewhat greater satisfaction from their retail-setting choice than do men. This finding also is inconsistent with the commonly held platitude that men show greater concern for income and business aspects of pharmacy, more prevalent in retail settings, while women are more oriented toward (and derive more satisfaction from) the acquisition of special occupational skills and clinical applications(11).

Finally, the evidence from this study suggests that ethnicity does not play a major role in influencing students' expected job satisfaction levels. Only the coefficient for Hispanic women is statistically significant; that is, they seem to antici-

pate relatively more satisfaction than do female students from the other ethnic groups.

CONCLUSION

A successful analysis of the impact on job satisfaction of variables affecting the distribution of intrinsic and extrinsic sources could be instrumental in reducing staff turnover and increasing productivity among pharmacists. If men and women respond differently, in direction or magnitude, to identical job satisfaction determinants, employers might be able to increase overall satisfaction by providing their employees with the specific intrinsic or extrinsic rewards most appealing to them, while eliminating potentially dysfunctional stimuli, according to practitioners' gender and other characteristics. Such analysis must recognize and deal with numerous little-understood relationships among perceptions, aspirations, prejudice, and availability of opportunities.

The task is hampered by a severe shortage of accurate data of the sort required for useful work on the problem. The sample is small—60 men and 93 women, including altogether five African Americans, 29 Hispanics, and 22 students of Asian origin. This constraint prevents exercising greater control over the gender classification and may help explain the absence of statistical significance of the ethnic-group variables. Thus, any results at this time should be regarded as necessarily preliminary.

Within the limitations of the available data, the empirical evidence developed here confirms that expected job satisfaction functions and corresponding elasticities can be estimated successfully for male and female pharmacy students. The evidence also suggests that the rapidly changing gender composition in the pharmacy profession may have eliminated or altered inter-gender differences in outlook and expectations which were prevalent until recently. While grades are a stronger determinant of job satisfaction for men than for women, age is a significant predictor for women but not for men. Surprisingly, women derive more expected satisfaction out of expected initial salary and out of potential retail-work setting than do men, which contradicts the traditional argument of greater male than female concern for income and business aspects of pharmacy.

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⁶Elasticity is an indicator of responsiveness. It measures the ratio of the percentage change in the dependent variable, in this case expected job satisfaction, to a small percentage change in an independent variable (i.e., expected salary, grade average, or age).

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