

Women in Transportation Management in Kuwait: Attitudes Toward Gender Bias

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Gender bias may be the single most significant contributor to the current worldwide escalation of both poverty and population. Whereas sex discrimination can be found universally, its effects are most pronounced in developing nations. The greatest obstacle to the development of policies for the curtailment of gender bias is lack of information on the scope and effects of the problem. An attempt is made to quantify attitudes toward gender bias among professional women working in the field of transportation management in Kuwait. The major findings that emerged from the study were as follows: (a) Since 1970, Kuwaitis have witnessed an enormous growth in the number of women in higher education; (b) with respect to job-related factors such as salary scale, professional treatment, responsibility, benefits, and vacation, nearly 80 percent of professional Kuwaiti women surveyed expressed a feeling of equality with or even superiority to their male counterparts; and (c) with respect to one job-related criterion, promotion to upper management positions, the women under study felt they were treated "less than equal" to their male colleagues. Perceptions of employment equality reported by the survey population were found to be positively correlated with level of education, years of work experience, grade point average, and field of specialty. The relationships were all significant statistically. Among the job-related factors contributing to the feeling of equality were, in order of importance, professional treatment, promotion, level of responsibility, and the opportunity to reach upper management positions. Interestingly enough, salary scale contributed least to the feeling of equality.

Despite enormous changes in the world's socioeconomic, political, and environmental conditions in recent years, gender bias remains a universal problem. This paper reports the findings of a recent study undertaken to determine attitudes toward gender bias among professional women working in the administration, planning, design, operation, and supervision of transportation systems in Kuwait.

Gender bias exists in every nation, at virtually every income level and social stratum. It is especially pervasive in poor countries, where it is often compounded by discrimination based on class, caste, or race. Its impacts include exclusion of women from social and educational development programs, wage and mobility discrimination, and systematic violence against women (1).

Gender bias is a primary cause of poverty in subsistence economies. It prevents hundreds of millions of women from obtaining the needed education, training, health services, child care, and legal status to improve productivity and escape from the cycle of poverty (2,3).

Gender bias has also been identified as the single most important factor contributing to rapid population growth (4,5). As environmental degradation and impoverishment continue to reduce women's access to productive resources, their responsibilities in

terms of demands on their time and energy increase. When they can no longer increase their own labor burdens, they depend more heavily on the contribution of their children, especially girls, to alleviate time constraints and improve economic security (6). The increasing tendency in many subsistence economies to keep girls out of school to help with their mothers' work virtually ensures that another generation of females will grow up with fewer options than their brothers to improve their life styles and narrow the gender gap.

Gender bias is not confined within the borders of developing nations. As economies develop, existing gender gaps in the allocation and distribution of wealth and access to resources usually persist, although their dimensions are likely to decrease with increasing sociopolitical awareness. For example, during the period stretching from the 1950s through the 1980s, worldwide standards of living—as measured by common indicators such as life expectancy, per capita income, and education—rose significantly, especially in the developed nations. Although women's rights were defined and broadened during this period, women never achieved complete parity with men, even in the developed economies (1). According to the "human development index" (HDI), a measure developed by the United Nations Development Program (UNDP) to gauge the level of resources needed by a human to attain a decent standard of living, women lagged behind men in every nation for which compatible data were available (7). As indicated by the HDI, women's HDI as a share of men's was 96 percent in Sweden, 86 percent in the United States, 83 percent in Italy, 77 percent in Japan, 65 percent in South Korea, and 58 percent in Kenya (7). Whereas those indices reflect the universality of gender bias, they also demonstrate that it is more pronounced in developing countries.

Gender-desegregated data recently collected on a small scale have been instrumental in the recognition of the gender gap (4). However, there is an enormous informational void on gender bias worldwide, especially in the developing world (1). Such data are essential for the development of policies and plans to ensure women's equal access to economic, health, and educational opportunities.

Compared with other Persian Gulf countries, Kuwaiti women rank very high on the scale of equality with their male counterparts in terms of socioeconomic and educational benefits, and access to recreational opportunities. Kuwaiti women are extremely mobile and independent. They enjoy a wide range of choice in clothing, from traditional Islamic clothing to the most current European and American fashion. And the two extreme styles, and everything in between, coexist harmoniously.

The appointment of a woman as rector of Kuwait University reflects a standard of achievement that can be attained by Kuwaiti women.

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This paper reports the results of a study of gender bias in the region. Its target population is professional women involved in the management of transportation systems in Kuwait. The specific aims of the research are to provide answers to the following questions:

- To what extent does gender bias exist in the management of transportation systems in Kuwait?
- Which job-related factors are most affected by this phenomenon?
- What personal factors affect attitudes toward gender bias?

RESEARCH SURVEY

More than 95 percent of the total population of Kuwait lives in Kuwait City. Because of the country's small population (631,818 people, 1993) and the concentration of the population in one urban area, the survey sample includes almost all professional Kuwaiti women involved in the management (administration, planning, design, operation, and maintenance) of transportation systems. Organizations employing these women include the ministries of Public Works, Communication, Defense, Industry and Commerce, and Social Welfare; Municipality; Public Transit Company; Kuwait Institute for Scientific Research; and a number of private companies.

Women involved in the management of transportation systems at each organization were identified, interviewed, and asked to fill out a pretested, simple, yet structured questionnaire. Two types of information were sought in the questionnaire: (a) sociodemographic and educational data and (b) gender-bias information on job-related factors. Altogether 244 professional women, nearly the total population, completed the questionnaire. Only seven questionnaires (2.9 percent) contained missing information, with the exception of the question regarding degree type, which 7 percent of the respondents did not complete.

The data were coded and compiled on a VAX computer system at the College of Engineering and Petroleum; SAS was used to process the data (8).

ANALYSIS AND RESULTS

Detailed statistical analyses were carried out to determine the extent of gender bias among transportation management professionals in Kuwait. Possible cause and effect relationships between gender bias and sociodemographic and educational characteristics of the surveyed population were also investigated. Mean and frequency statistics were used to determine distributions and deviations; cross-classification analysis was performed to evaluate trends. A correlation analysis was performed to identify degrees of associations, and the *t*-test and R^2 were applied to examine the magnitude of the associations.

Educational characteristics of professional women in transportation management in Kuwait are presented in Table 1. Only 1.6 percent of the study population had graduated from institutions of higher education before 1970. This figure increased to 9.4 percent in the decade of the 1970s, to 59.8 percent in the 1980s, and to 29.1 percent in the 1990s. The statistics reflect the enormous growth rate of women's participation in higher education in recent decades. Since 1970, women in Kuwait have been enrolling in

TABLE 1 Graduation Year, Degree Type, and Field of Specialization

Variable	Frequency	Percent
Graduate Year:		
< 1970	4	1.6
1970-1979	23	9.4
1980-1989	146	59.8
> 1990	71	29.1
Degree Type:		
Institute/Junior College	20	8.2
College	191	78.2
Masters	11	4.5
Doctorate	5	2.1
Missing	17	7.0
Field of Specialization:		
Civil Engrg.	105	43.2
Chemical Engrg.	7	2.9
Elec./Computer Engrg.	41	16.9
Mechanical Engrg.	14	5.8
Petroleum Engrg.	1	0.4
Mgt./Eco./Business	13	5.3
Sciences	6	2.5
Other	56	23.0

institutions of higher learning at a mean annual growth rate of 261 percent.

The largest percentage of the study population had college degrees (78.2 percent). Sixteen had successfully pursued graduate studies, 11 had a master's degree and 5 had a Ph.D. degree. Of the study population, 8.2 percent were graduates of technical institutes in Kuwait.

Civil engineering was the most common field of specialization among the professional women interviewed (43.2 percent). Other specializations were electrical or computer engineering (16.9 percent), mechanical engineering (5.8 percent), and management, economics, and business administration (5.3 percent). The remaining women specialized in chemical and petroleum engineering, one of the sciences, or other fields.

Nearly 42 percent of the professional women in transportation management in Kuwait graduated with a grade point average (GPA) of between 2.00 and 2.99. The second largest percentage (37.3 percent) had a GPA of less than 2.00. Those who achieved a GPA of 3.00 or above at graduation represented 20.9 percent of the group under study (Table 2). The mean population GPA was 2.34.

A majority of the study population were married (66.4 percent), and nearly a quarter (24.2 percent) had been employed for 1 year or less. Approximately 60 percent had been working for 2 to 10 years, 8.2 percent for 10 to 15 years, and 5.3 percent had more than 15 years of work experience (Table 2). These statistics reflect the growth in recent years of the number of women graduating from institutions of higher education and participating in the labor market. The mean number of years of work experience was 5.9 for the study population as a whole.

Table 3 presents responses to the following question: "In comparison with the men engineers in your organization who have

TABLE 2 Grade Point Average, Marital Status, and Work Experience

Variable	Frequency	Percent
GPA:		
1.0 - 1.9	91	37.3
2.0 - 2.9	102	41.8
3.0 - 4.0	51	20.9
Marital Status:		
Single	82	33.6
Married	162	66.4
Years of Experience:		
< 1 year	59	24.2
2 - 4	55	22.5
5 - 7	50	20.5
8 - 10	47	19.3
11 - 15	20	8.2
> 16	13	5.3

similar characteristics (education, years of experience, and other qualifications), do you receive the same salary, . . . , job benefits?" Nearly two-thirds of the respondents said they were treated equally with respect to salary (60.3 percent), promotion (58.7 percent), professional treatment (65.7 percent), level of responsibility (62.1 percent), job benefits (61.8 percent), and vacation (78.5 percent). See Table 3.

The only significant inequality reported was related to the question about reaching upper management positions; 39.3 percent of respondents said women were not treated equally on that basis. This figure suggests that it is still a man's world at higher echelons of transportation management in Kuwait. However, the great respect for motherhood that characterizes Middle Eastern cultures is reflected in the study's vacation statistics. A significant percentage of the professional women surveyed had enjoyed longer vacations and times off the job than their male counterparts (e.g., 2 months of paid vacation for each child's delivery).

Although no comparable data were found in the literature concerning job equality for women professionals working in transportation in western industrialized nations, statistics presented in Table 3 indicate a significant lack of gender bias among Kuwait's

TABLE 3 Study Population's Responses to Job-Related Factors

Job-Related Factor	Compared to Men Colleagues in Your Organization, is your:			
	The Same:		If No:	
	Yes	No	More	Less
Salary Scale :	60.3	39.7	4.5	95.5
Promotion :	58.7	41.3	7.6	92.4
Professional Treatment :	65.7	34.3	21.1	78.9
Level of Responsibility :	62.1	37.9	30.1	69.9
Reaching Upper Management :	39.3	60.7	7.8	92.2
Job Benefits :	61.8	38.2	13.6	86.4
Vacation :	78.5	21.5	38.3	61.7

transportation management professionals. In fact, in a surprising response to the question "Do you, in every respect, feel equal to the men engineer colleagues?" a majority (68.8 percent) said "yes." Of those who said "no," 81.3 percent (61 individuals) stated they actually felt "superior" to their male colleagues. That response may not be so surprising after all. Academic records of students enrolled in transportation courses indicate that in the category of "A" and "B" grades, female students outnumber their male counterparts by a ratio of nearly three to one (9).

The women's expression of "feeling equal" to their male colleagues followed certain expected patterns. The most pronounced relationship was between this "feeling of equality" and the type of degree that they held. As the level of education increased (from the institute level to the doctoral level), the percentage of those who felt equal to their male colleagues also increased. Increases in feelings of equality from that of the graduates of institutes (2-year programs) to those with bachelor's, master's and doctoral degrees were 11.7, 51.7, and 66.7 percent, respectively (Table 4).

The factor of years of experience also correlated positively with the feeling of equality. An increase in years of experience was followed by an increase in the feeling of equality (Table 4). The relationship between the grade point average and the feeling of equality, although positively related, peaked for those with a GPA between 2.00 and 3.00 (Table 4). Perhaps higher levels of expectation on the part of individuals with very high GPAs may partly explain the diminished feeling of equality experienced by this group.

All of the study's professional women with a degree in electrical and computer engineering felt equal to their male counterparts. Of those with mechanical engineering degrees, 79 percent felt equal, of chemical engineers, 76 percent. Ironically, only 58 percent of female civil engineers in the study population felt equal to their male colleagues.

Correlation Analysis and the *t*-test

A correlation analysis was performed to determine the degree of association between the socioeducational traits of the study pop-

TABLE 4 Cross-Classification of Educational Traits and Feeling of Equality

Variable Name	Feeling of Equality (%)	
	Yes	No
Degree Type:		
Institute	60	40
College	67	33
Master	91	9
Doctorate	100	0
Years of Experience:		
< 6	67	33
7 - 11	70	30
12 - 16	72	28
> 17	83	17
GPA:		
< 2.00	58	42
2.00 - 2.99	76	24
3.00 - 4.00	72	28

ulation and their attitudes toward gender bias. The resulting coefficients of correlation were subjected to a *t*-test to quantify their significance (10).

The *t*-test rejects the hypothesis $H_0: r_{xy} = 0$, that a given value of coefficient of correlation is equal to zero (indicating insignificant statistical association between any two variables *x* and *y* if

$$|T| = [r_{xy}/(1 - r_{xy}^2)^{1/2}] (N - 2)^{1/2} \geq t_{\alpha/2}; N - 2$$

where

- T* = percentage point of the *T* distribution,
- r_{xy} = coefficient of correlation, *N* sample size,
- $t_{\alpha/2}$ = the 100 - $\alpha/2$ percentage point of the *T* distribution for *N* - 2 degrees of freedom, and
- α = tolerance limit.

Type of degree was correlated positively and significantly with the factor of equal professional treatment ($r_{xy} = 0.2359$, $T = 2.16$, $\alpha = 0.05$), with the level of equality in job responsibility ($r_{xy} = 0.2607$, $T = 2.52$, $\alpha = 0.05$), and with equality in vacation ($r_{xy} = 0.2728$, $T = 2.81$, $\alpha = 0.01$). In other words, women with higher educational degrees were more numerous among those who expressed equality in professional treatment, job responsibility, and vacation options.

The GPA was also positively and significantly correlated with equality in salary scale ($r_{xy} = 0.2899$, $T = 3.00$, $\alpha = 0.01$), with equality in promotional criteria ($r_{xy} = 0.3374$, $T = 3.79$, $\alpha = 0.01$), and with job benefits ($r_{xy} = 0.2147$, $T = 2.79$, $\alpha = 0.01$). Those with higher GPAs tended to feel equal to their male counterparts.

Ironically, women engineers with non-civil engineering degrees (especially electrical and computer engineers) were more apt to experience equality in the upper management of transportation systems. This relationship was statistically significant at the 95 percent significance level ($\alpha = 0.05$). This finding does not necessarily mean the non-civil engineers outpaced civil engineers in reaching civil engineering-related management positions. It may indicate that female engineers in electrical and computer, mechanical, and chemical engineering jobs experienced less competition in climbing the ladder to upper management levels.

Of particular interest is the finding that gender bias is a declining trend in Kuwait. The number of years of employment experienced by professional women in transportation was negatively and significantly correlated with equality of salary scale ($r_{xy} = -0.2162$, $T = 3.26$, $\alpha = 0.01$) as well as equality in promotion ($r_{xy} = -0.2188$, $T = 3.31$, $\alpha = 0.01$). In other words, most of the women professionals who stated equality with men in the salary scale and promotional criteria, were from among those who had recently been employed by transportation organizations.

To examine how job-related factors contribute to the feeling of equality expressed by the professional women in the management of transportation systems in Kuwait, coefficients of determinations, R^2 , were computed for the data. As presented in Table 5, important points include the following: (a) all of the job-related factors were positively associated with the feeling of equality; (b) the magnitude of these associations were all statistically significant at the 99 percent confidence level (except for the salary scale, which is significant at the 95 percent level); and (c) all of the nonmonetary job factors outweighed the salary scale component by significant margins in contributing to respondents' feeling of equality. The factors, were, in order of importance, professional

TABLE 5 Correlation Coefficients, *t*-Test, and Coefficients of Determination for Feeling of Equality and Job-Related Factors

Job-Related Factor	Coefficient of Correlation (r_{xy})	Degrees of Freedom (<i>N</i> -2)	Computed T Value	Test of Hypothesis: $H_0: r_{xy} = 0$	Contribution to the Feeling of Equality ($R^2\%$)
Salary	0.1472	236	2.59	Rej., $\alpha=0.05$	2.2
Promotion	0.3545	236	5.82	Rej., $\alpha=0.01$	12.6
Professional Treatment	0.3568	236	5.87	Rej., $\alpha=0.01$	12.7
Level of Responsibility	0.3342	237	5.44	Rej., $\alpha=0.01$	11.5
Job-Benefits	0.3395	235	5.54	Rej., $\alpha=0.01$	11.2
Management Position	0.2970	236	4.78	Rej., $\alpha=0.01$	8.8

treatment, promotion, level of responsibility, job benefits, and opportunity to reach upper management positions.

Study Implications

These findings have some interesting implications for working women in Kuwait. On the scale of professional equality described in the introduction of this study, Kuwaiti women in transportation management rank on a par with professional women in western countries. Considering the situation of women in neighboring Saudi Arabia, to which Kuwaiti society has deep cultural as well as geographical ties, this is a surprising achievement. Moreover, it may challenge a stereotype of Arab women as less than equal. It is hoped that this study will generate comparative research in the area of gender bias in the Middle Eastern and other societies.

CONCLUSIONS

The study identified significant trends. Since the early 1970s, there has been an enormous growth rate in the number of women who participate in higher education and employment opportunities in Kuwait. The feeling of equality with male colleagues prevails among Kuwait's professional women involved in the management of transportation systems. In addition, nearly 80 percent of the study population expressed feelings of equality or superiority to their male colleagues with respect to a number of job-related factors.

The contribution of job-related factors to the feeling of equality, as expressed by the Kuwaiti professional women under study, were, in order of importance, professional treatment, promotion, job responsibility, job benefits, and the opportunity to reach upper management positions.

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