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# Perceived Self-efficacy in Alimentary Care and Physical Health in Mexican University Students, Comparisons by Gender

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**Abstract:** The objective of this research was to compare the profiles of perceived self-efficacy in alimentary care behaviors and physical health of men and women university students. The overall sample consisted of 1313 subjects; 710 women and 603 men students of the degrees offered at the Faculty of Physical Culture of the Autonomous University of Chihuahua, with an average age of 20.46 years ( $SD = 1.87$ ). The approach adopted in the research was framed within a quantitative approach with a descriptive design survey type. The differences found between men and women regarding their perception of self-efficacy in the care of their diet and physical health, suggest that when designing any intervention that aims to improve perceived self-efficacy must be taken into account the gender variable. Future research should replicate these findings in larger samples.

**Keywords:** Student's Beliefs, Gender Differences, Higher Education, Health Care, Students Characteristics

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## 1. Introduction

The construct of self-efficacy has been applied to such diverse behaviors in different domains of health: the management of chronic diseases, drug use, sexual activity, smoking, exercise, weight loss, and also the ability to recover from health problems or to avoid potential health risks [1]. Research shows that high levels of self-efficacy have beneficial effects on the functioning of the individual and in its general wellbeing [2, 3].

The perception of people about their own effectiveness stands as a fundamental requisite for developing successful actions in the pursuit of personal goals [4]. This perception, called self-efficacy, exerts a profound influence on the choice of tasks and activities, in the effort and perseverance of people when they face certain challenges and even in the emotional reactions that they experience in difficult situations. In short, self-efficacy beliefs represent a cognitive mechanism that mediates between knowledge and action and determines, along with other variables, the success of the personal actions [5].

From the Social Learning Theory of Bandura, is then assumed that self-efficacy expectations are an important

predictor of the intentions and actions of individuals facing various situations: because a high level of perceived self-efficacy has been shown as a protective element which increases the motivation, reduces emotional disturbances, and at the same time improves healthy behaviors and physical care. In fact, compared to how difficult it can be to encourage the adoption of behaviors that promote health or stop harmful behavior against it, self-efficacy has consistently shown to be a major factor [6].

Therefore, perceived self-efficacy plays a key role in human functioning since, affects behavior not only directly, but also for its impact on other key determinants such as goals and aspirations, outcome expectations, affective tendencies and perception of the impediments and opportunities that arise in the social environment [7]. Self-efficacy beliefs influence in people's thoughts, in the course of action that they choose to pursue; the challenges and goals that they set to themselves and their commitment to them; the amount of effort they invest in certain tasks; the results they expect to achieve by their efforts; the magnitude of their perseverance in the face of obstacles; their resistance to adversity; the level of stress and depression that they experience when they face environmental demands and the achievements reached [8].

This work is primarily a descriptive study that compares the perceived self-efficacy profiles in behaviors of alimentary care and physical health of men and women Mexican university students, thus trying to provide evidence and information that promote the educational intervention within a perspective of attention to diversity.

## 2. Method

### 2.1. Participants

1313 subjects participated in the study, 710 women and 603 men all students of the degrees offered at the Faculty of Physical Culture (FCCF) of the Autonomous University of Chihuahua. The age of the subjects ranged between 18 and 26 years, with a mean of 20.46 and a standard deviation of 1.87 years.

The sample was obtained by a convenience sample, trying to cover the representation of the different semesters of both degrees.

### 2.2. Design and Variables

Regarding the design of the study, a quantitative approach with a descriptive and transversal survey design was used [9]. The independent variable was gender (women and men) and the dependent variables were the mean scores on the five Self-efficacy indexes of the subscales Physical exercise, Alimentary care, Facing problems, Avoid tobacco consume, and Avoid alcohol consume.

### 2.3. Instrument

Self-efficacy scale in alimentary care and physical health. The questionnaire consists of 28 items related with behaviors of health care grouped in five factors: (1) Physical exercise, (2) Alimentary care (3) Facing problems with six items each; (4) Avoid tobacco consume and (5) Avoid alcohol consume with five items.

It is a Likert scale computer-assisted where the respondent answers on a scale of 0-10, how capable he feels (current scenario), how much interest he has (scenario of interest) and if he strives to change how capable he could be (scenario of change) to perform each of the related behaviors with health care contained in the questionnaire.

Then from their answers it is obtain five indexes:

1. Perceived self-efficacy. Obtained from the answers to the current scenario.
2. Desired self-efficacy. Obtained from the answers to the scenario of interest.
3. Reachable self-efficacy. Obtained from the answers to the scenario of change.
4. Dissatisfaction or dissonance in self-efficacy. Obtained from the difference between the index 2 and 1 (ideal minus current).
5. Possibility for improving self-efficacy. Obtained from the difference between the index 3 and 1 (change minus current).

This type of survey was chosen because it is easy to build and apply; also it provides a good basis for a first organization of individuals in the characteristic being measured [10].

### 2.4. Procedure

Students of the degrees offered at the Faculty of Physical Culture (FCCF) of the Autonomous University of Chihuahua were invited to participate. Those who agreed to participate signed the consent letter. Then, the instrument explained above was applied using a personal computer (administrator module of the instrument of the scales of typical execution), in a session of about 30 minutes in the computer labs of the FCCF.

At the beginning of each session students were given a brief introduction on the importance of the study and how to access the instrument; they were asked the utmost sincerity and they were guaranteed the confidentiality of the data obtained. Instructions on how to respond were in the first screens; before the first instrument item. At the end of the session they were thanked for their participation.

Once the instrument was applied, data was collected by the results generator module of scales editor, version 2.0 [11].

### 2.5. Data Analysis

Descriptive statistics (means and standard deviations) for all the variables were calculated. Subsequently, after verifying that the data met the assumptions of parametric statistical analyses, a one-way multivariate analysis of variance (MANOVA), followed by the one-way univariate analysis of variance (ANOVA), were used to examine the differences between the men and women in the reported self-efficacy in Physical exercise, Alimentary care, Facing problems, Avoid tobacco consume, and Avoid alcohol consume. Moreover, the effect size was estimated using the eta-squared ( $\eta^2$ ). All statistical analyses were performed using the SPSS version 20.0 for Windows (IBM® SPSS® Statistics 20). The statistical significance level was set at  $p < .05$ .

## 3. Results

### 3.1. Physical Exercise Factor

Table 1 shows the mean values and standard deviations of self-efficacy in the Physical exercise factor, as well as the results of MANOVA and subsequent ANOVAs.

The results of MANOVA indicated overall significant differences according to gender in the scores of self-efficacy in the Physical exercise factor (Wilks'  $\lambda = .943$ ,  $p < .001$ ;  $\eta^2 = .057$ ). Afterwards, the results of the ANOVA showed that men reported greater perceived self-efficacy ( $F = 61,593$ ,  $p < .001$ ) desired self-efficacy ( $F = 23,279$ ,  $p < .001$ ), and reachable self-efficacy ( $F = 24,675$ ,  $p < .001$ ); and a lower dissatisfaction ( $F = 36.524$ ,  $p < .001$ ) in the Physical exercise factor than women, although with less chance of improvement in their perception of self-efficacy ( $F = 51,308$ ,  $p < .001$ ) than women.

### 3.2. Alimentary Care Factor

Table 2 shows the mean values and standard deviations of self-efficacy in the Alimentary care factor, as well as the MANOVA results and subsequent ANOVAs.

The results of MANOVA indicated overall significant differences according to gender in the scores of self-efficacy in the Alimentary care factor (Wilks'  $\lambda = 0.961$ ;  $p < .001$ ;  $\eta^2$

$= .039$ ). Subsequently, the results of the ANOVA showed that men reported greater perceived self-efficacy ( $F = 4.211$ ,  $p < .05$ ) and a lower dissatisfaction ( $F = 48.284$ ,  $p < .001$ ) in the Alimentary care factor than women, although with less chance of improvement in their perception of self-efficacy ( $F = 28.906$ ,  $p < .001$ ) than women. However in the desired and achievable self-efficacy, no significant differences were found ( $p > .05$ ).

**Table 1.** Results of MANOVA for the gender differences in the five indexes of self-efficacy for Physical exercise factor.

	Women (n = 710)	Men (n = 603)	F	p	$\eta^2$
			26.224	< .001	.057
Perceived self-efficacy	7.75 (2.13)	8.60 (1.70)	61.593	< .001	.045
Desired self-efficacy	8.13 (1.99)	8.64 (1.78)	23.279	< .001	.017
Reachable self-efficacy	8.53 (1.75)	8.98 (1.48)	24.675	< .001	.018
Dissatisfaction or dissonance in self-efficacy	0.38 (1.03)	0.04 (0.99)	36.524	< .001	.027
Possibility for improving perceived self-efficacy	0.78 (1.18)	0.39 (0.71)	51.308	< .001	.038

Note. Descriptive values are reported as mean (standard deviation)

**Table 2.** Results of MANOVA for the gender differences in the five indexes of self-efficacy for Alimentary care factor.

	Women (n = 710)	Men (n = 603)	F	p	$\eta^2$
			17.797	< .001	.039
Perceived self-efficacy	7.66 (2.21)	7.91 (2.18)	4.211	< .05	.003
Desired self-efficacy	8.07 (2.09)	7.88 (2.33)	2.382	.123	.002
Reachable self-efficacy	8.47 (1.86)	8.40 (2.02)	0.366	.546	.000
Dissatisfaction or dissonance in self-efficacy	0.40 (1.06)	0.03 (1.22)	48.284	< .001	.036
Possibility for improving perceived self-efficacy	0.81 (1.20)	0.49 (0.84)	28.906	< .001	.022

### 3.3. Facing Problems Factor

Table 3 shows the mean values and standard deviations of self-efficacy in the Facing problems factor, as well as the results of MANOVA and subsequent ANOVAs.

The results of MANOVA indicated overall significant differences according to gender in the scores of self-efficacy in the Facing problems factor (Wilks'  $\lambda = .962$ ;  $p < .001$ ;  $\eta^2 = .038$ ). Subsequently, the results of the ANOVA showed that men reported greater Perceived self-efficacy ( $F = 24.870$ ,  $p < .001$ ) and reachable self-efficacy ( $F = 5.184$ ,  $p < .05$ ) and a lower dissatisfaction ( $F = 43.797$ ,  $p < .001$ ) in the Facing problems factor than women, although with less chance of improvement in their perception of self-efficacy ( $F = 27.242$ ,  $p < .001$ ) than women. However in the desired self-efficacy, no significant differences were found ( $p > .05$ )

### 3.4. Avoid Tobacco Consume Factor

Table 4 shows the mean values and standard deviations of self-efficacy in the Avoid tobacco consume factor, as well as the results of MANOVA and subsequent ANOVAs.

The results of MANOVA indicated overall significant differences according to gender in the scores of self-efficacy in the Avoid tobacco consume factor (Wilks'  $\lambda = .987$ ;  $p =$

$< .01$ ;  $\eta^2 = .013$ ). Subsequently, the results of the ANOVA showed that women reported greater Perceived self-efficacy ( $F = 7.691$ ,  $p < .01$ ), desired self-efficacy ( $F = 14.889$ ,  $p < .001$ ) and reachable self-efficacy ( $F = 5.582$ ,  $p < .05$ ) as well as a greater dissatisfaction ( $F = 4.055$ ,  $p < .05$ ) in the Avoid tobacco consume factor than men. However the possibility of improvement in their perception of self-efficacy, no significant differences were found ( $p > .05$ ).

### 3.5. Avoid Alcohol Consume Factor

Table 5 shows the mean values and standard deviations of self-efficacy in the Avoid alcohol consume factor, as well as the results of MANOVA and subsequent ANOVAs.

The results of MANOVA indicated overall significant differences according to gender in the scores of self-efficacy in the Avoid alcohol consume factor (Wilks'  $\lambda = .985$ ;  $p < .001$ ;  $\eta^2 = .015$ ). Subsequently, the results of the ANOVA showed that women reported greater Perceived self-efficacy ( $F = 10.658$ ,  $p < .01$ ), desired self-efficacy ( $F = 18.377$ ,  $p < .001$ ) and reachable self-efficacy ( $F = 11.760$ ,  $p < .01$ ) as well as a greater dissatisfaction ( $F = 5.286$ ,  $p < .05$ ) in the Avoid alcohol consume factor than men. However the possibility of improvement in their perception of self-efficacy, no significant differences were found ( $p > .05$ ).

**Table 3.** Results of MANOVA for the gender differences in the five indexes of self-efficacy for facing problems factor.

	Women (n = 710)	Men (n = 603)	F	p	$\eta^2$
			17.023	< .001	.038
Perceived self-efficacy	7.90 (1.79)	8.37 (1.60)	24.870	< .001	.019
Desired self-efficacy	8.44 (1.61)	8.51 (1.67)	0.734	.392	.001
Reachable self-efficacy	8.71 (1.43)	8.89 (1.40)	5.184	< .05	.004
Dissatisfaction or dissonance in self-efficacy	0.54 (1.04)	0.15 (1.12)	43.797	< .001	.032
Possibility for improving perceived self-efficacy	0.81 (1.11)	0.52 (0.59)	27.242	< .001	.020

**Table 4.** Results of MANOVA for the gender differences in the five indexes of self-efficacy for Avoid tobacco consume factor.

	Women (n = 710)	Men (n = 603)	F	p	$\eta^2$
			5.641	< .01	.013
Perceived self-efficacy	9.09 (1.85)	8.79 (2.12)	7.691	< .01	.006
Desired self-efficacy	9.15 (1.77)	8.72 (2.26)	14.899	< .001	.011
Reachable self-efficacy	9.42 (1.44)	9.21 (1.76)	5.582	< .05	.004
Dissatisfaction or dissonance in self-efficacy	0.06 (0.83)	0.01 (1.39)	4.055	< .05	.003
Possibility for improving perceived self-efficacy	0.32 (0.87)	0.42 (0.91)	3.682	.055	.003

Note. Descriptive values are reported as mean (standard deviation)

**Table 5.** Results of MANOVA for the gender differences in the five indexes of self-efficacy for Avoid alcohol consume factor.

	Women (n = 710)	Men (n = 603)	F	p	$\eta^2$
			6.446	< .001	.015
Perceived self-efficacy	8.82 (1.82)	8.47 (2.02)	10.658	< .01	.008
Desired self-efficacy	8.81 (1.87)	8.31 (2.29)	18.377	< .001	.014
Reachable self-efficacy	9.19 (1.48)	8.87 (1.81)	11.760	< .01	.009
Dissatisfaction or dissonance in self-efficacy	0.16 (0.81)	0.01 (1.45)	5.286	< .05	.004
Possibility for improving perceived self-efficacy	0.36 (0.80)	0.40 (0.80)	0.612	.434	.000

Note. Descriptive values are reported as mean (standard deviation)

## 4. Discussion and Conclusions

Regarding to the alimentary care behaviors (to resist eating when I'm anxious, depressed or when there is plenty of food available, resist eating foods high in calories even though they are very tasty, etc.), physical exercise (doing physical exercise at least 30 minutes three or more sessions a week and do physical exercise, despite having concerns, feeling depressed, tense, tired or busy) and facing problems (deal effectively problems or adversities, do not feel tense or anxious when there are problems or misfortunes, etc.) after studied them, is noted that, men compared to women, they perceived themselves more self-efficient, with a greater need and possibility to be more self-efficient and at the same time with a less dissatisfaction and possibility of improvement in this regard. While in avoiding the consumption of Tabacco and alcohol, the opposite occurs; Women perceived themselves as more self-efficient, with a greater need and possibility to be

more self-efficient and at the same time with less dissatisfaction than men; in general the results coincide with the results obtained by [12] in a similar study on gender differences in the perception of self-efficacy in health care.

On the other hand, according to the results obtained in the present investigation and taking into account that over the last few years it has been configured through more or less coherent formulations, the theoretical basis that have served as a framework to explain the perception of self-efficacy in women and men. Most notably the social cognitive theory [13], according to which self-efficacy expectations are one of the main determinants of gender differences in decision-making, differences that are the result of the socialization process which results in men and women having a different perception about tasks, activities and occupations that are most appropriate for each gender. So, assuming the task of improving the perception of being able is a valuable educational objective, under the implicit

assumption that their empowerment will serve as a vehicle for improving other outcomes such as self-esteem and personal development.

## 5. Conclusions

The differences found between men and women regarding their perception of self-efficacy suggest that, when designing any type of intervention that aims to improve the perceived self-efficacy, will have to take into account the gender variable. It is also emphasized the importance to make more research on the subject in our country, because almost all studies about it have been conducted in other countries.

## Limitations of Study

At least two limitations are present in this work. The first is that participants are only Mexican university students, which threatens the possibility of generalizing these results. Expand the sample (for example adding young adults who are not students) is a work area for the future. The second limitation comes from the measuring instrument itself, which is based on self-inform and therefore may contain biases that result from social desirability.

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