






## RESEARCH ARTICLE

# Effect of teaching leadership styles on the prevention of adolescence pregnancy: a case study conducted at Universidad César Vallejo, Peru [version 1; peer review: 1 approved with reservations]

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## Abstract

**Background:** In this study we aimed to determine the effect of university teaching and leadership styles at Universidad César Vallejo on the prevention of adolescence pregnancy.

**Methods:** We performed a non-experimental, quantitative, cross-sectional study, with a correlational descriptive design using a survey. Participants were students in classes enrolled in the starting two semesters at Universidad César Vallejo, Peru. The questionnaire comprised three sections: (I) General demographic data, (II) Teacher leadership styles, and (III) Pregnancy prevention teachings.

**Results:** According to the students (n=793), teaching leadership styles are of three types: *Laissez faire*, transactional, and transformational. Types of pregnancy prevention from the students' standpoint are the following: "high" level of "primary prevention" (44.4%), "medium" level of "tertiary prevention" (36.6%), and "high" level of "secondary prevention" (36.2%). Chi-Square test revealed that the three styles of leadership significantly affect the prevention of pregnancy: transformational ( $X^2 = 136.390$ ), transactional ( $X^2 = 95.539$ ), and *Laissez Faire* ( $X^2 = 80.557$ ) ( $p < 0.05$ ). Overall, there is a significant impact of university teaching leadership on pregnancy prevention among higher education students ( $X^2 = 110,634$ ,  $p = 0.0000$ ), with a significance level of 5%.

## Open Peer Review

### Approval Status ?


1

#### version 1

24 Mar 2021



[view](#)

1. **Seyed Ali Azin** , Academic Center for Education, Culture and Research (ACECR), Tehran, Iran

Any reports and responses or comments on the article can be found at the end of the article.

**Conclusions:** It can be concluded that for college students, teaching leadership style significantly affects the prevention of adolescent pregnancy.

### Keywords

leadership, university teacher, pregnancy prevention, public health

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## Introduction

In low- and middle-income countries, there are about 16 million young women, aged 15–19, and approximately 1 million girls less than 15 years old, who give birth over one year. Problems that occur during pregnancy and childbirth are the second leading cause of death of these women, worldwide. Also, every year about 3 million girls aged 15–19 undergo unsafe abortions (UNICEF, 2014). For this reason, pregnancy of adolescents and young women is a significant public health issue in South America, as it reduces the chances of educational development of pregnant woman and by this, it amplifies the risk of their poverty. To address these issues, there is an increasing number of studies that examine the role of teachers and lecturers in sexual education and prevention in the Latin American region (Anzoategui, 2015; Arroyave *et al.*, 2015; Newman *et al.*, 2008; Rosario, 2012). According to Arroyave & co-workers (2015), students are aware of the demanding responsibility of motherhood and fatherhood, nevertheless, they do not practice safe sex. Ramírez & Contreras (2013) emphasized that unfortunately, high school and university professors do not have sufficient knowledge related to this topic, for example, the ways in which HIV is transmitted. Therefore, they are not prepared to provide efficient sexual education. Reátegui & Carranza (2016) concluded that teaching style was likely the most important contributor to preventing adolescent pregnancy. Here, we present a correlation analysis between teaching leadership styles (transformational, transactional, and laissez faire) and the prevention of adolescence pregnancy among university students at Universidad César Vallejo, in Peru.

## Methods

### Study design

We performed a non-experimental, quantitative, cross-sectional study, with a correlational descriptive design.

### Setting

The study was conducted from June 8, 2018 to July 20, 2018. Questionnaires were handed to students every Friday. Survey questions were administered in the classrooms, on the Universidad César Vallejo campus, a subsidiary on the Tarapoto campus. Average time of 25 min was allowed for completing the questionnaires.

### Eligibility criteria

To strive for completeness and diversity, we invited all students in person during classes enrolled in the starting two semesters

at Universidad César Vallejo, Peru. Students were only included if they (1) agreed to participate in the study voluntarily; and (2) had physical and mental capacity to answer the questionnaires.

### Sample size

Our sample population consisted of 793 students, which equaled all students within the eligibility criteria.

### Data collection

Our questionnaire described below was validated by exploring (i) ACE (Adverse childhood experiences), including possible emotional, physical, or sexual abuse experienced at the age of less than 18 years; this was tested in a randomized manner, on 40 students (this number represents 5% of the total number of students tested in our study); next a (ii) preliminary pilot testing was performed by engaging 80 students (this number represents 10% of the total number of students tested in our study), and finally, (iii) reliability testing was conducted on internal consistency, test-retest, and inter-rater. Result of our preliminary testing validated the survey, such that no changes had to be implemented.

The questionnaire comprised three sections: (I) General demographic data, (II) Teacher leadership styles, and (III) Pregnancy prevention teachings. Sections II and III had a rating scale from 1 to 5, according to the Likert scale (Boone & Boone, 2012). A copy of the questionnaire can be retrieved from the Extended data (Contreras & Lowy, 2020).

Section II contained 17 questions for transformational leadership, 14 questions for transactional leadership, and 9 for laissez faire leadership, to sum to a total of 40 questions. Based on results of section II, teaching leadership styles were grouped into three categories according to Vásquez (2012), namely (i) Transformational (high control and low acceptance), (ii) Transactional (high control and high acceptance), and (iii) Laissez faire (low control and high acceptance) (Table 1).

Section III addressed 10 questions on primary prevention, 5 questions on secondary prevention, and 4 questions on tertiary prevention. Answers allowed to assess, whether the teacher provided low, medium, or high level teaching for each type of prevention, as follows: for > 63, high teaching level was assigned; at ≤ 63-42, medium teaching level was considered; while < 42 corresponded to low teaching level .

**Table 1. Distribution of minimum, maximum, and low, medium, and high-level scores for each dimension of the leadership styles.**

Dimensions	Max. score	Min. score	Low	Medium	High
Transformational	85	17	20 -41	42 - 63	64 - 85
Transactional	70	14	14 - 32	33 - 51	52 - 70
<i>Laissez-faire</i>	45	9	9 - 21	22 - 33	34 - 45
Total	200	40	40 - 93	94 - 146	147 - 200

## Statistical analysis

We applied Chi-Square for statistical analysis, using SPSS (version 26) to reveal possible correlations between teaching leadership styles and prevention of adolescence pregnancy. Significant correlations were accepted at the  $p < 0.05$  level, as widely applied in public health-related studies.

## Ethical approval

The committee of the Vicerrectorado de Investigación, Universidad César Vallejo approved this study (021-2018-VI-UCV) on April 16, 2018. All participants were informed on the scope and content of the survey, on their rights as participants, and for additional information and possible questions, they were provided the name and electronic address of a designated contact person. All participants signed a consent form.

## Results

Participant characteristics are listed in [Table 2](#).

Based on the survey test results, there is no significant difference between the distribution of the various teaching leadership styles, e.g., according to students' insight, the transformational, transactional, and laissez faire styles were 50.4, 51.5, and 55.5, respectively, at high perspective level ([Table 3](#)).

**Table 2. Sociodemographic characteristics of participating students enrolled in semesters 1 and 2, in 2018 (n=793).**

Characteristics	N	%
Age, years		
16–19	671	84.6
20–23	73	9.2
24–27	34	4.3
≥ 28	15	1.9
Gender		
Female	462	58.3
Male	331	41.7
Origin		
Urban	623	78.6
Rural	159	20.1
Urban – marginal	11	1.4
Religion		
Catholic	541	68.2
Evangelic	101	12.7
Atheist	33	4.2
Other	118	14.9

We found that the types of pregnancy prevention, used by students were the following: 44.4% apply “high” level of “primary prevention”, 36.6% “medium” level of “tertiary prevention,” while 36.2% utilize a “low” level of “secondary prevention” ([Table 4](#)).

Via the non-parametric Chi square test, we determined that leadership styles transformational, Transactional, and *Laissez Faire* significantly impact the prevention of pregnancy ( $X^2 = 136.390$ ,  $p = 0.0000$ ;  $X^2 = 95.539$ ,  $p = 0.0000$ ; and  $X^2 = 80.557$ ,  $p = 0.0000$ , respectively) ([Table 5](#)). We evidenced a substantial correlation between the leadership variable and prevention of pregnancy of higher education students ( $X^2 = 110.634$ ;  $p = 0.0000 < 0.05$ ). Our results agree with findings by [Jordán & Blanco \(2015\)](#), i.e., that health education is unsatisfactory in the higher education system.

## Discussion

Leadership implies an influential relationship between two or more people; therefore, the leadership of teachers constitutes a fundamental axis in education, training, and personal-social development of college students. Classroom education is triggered by a series of interactions between teachers and students, among students, and between diverse groups of students, all these collaborations being guided by rules of coexistence. Overall, these processes enable learning and integral development of students. Also important is the effectiveness of teachers in creating an appropriate climate for learning and collaboration.

Direct relationship between teaching leadership and coexistence sets the necessary characteristics for reducing pregnancy of college students and by this, to avoid consequences of desertion, low learning, discrimination, and more importantly, to prevent perinatal maternal morbidity and mortality. Our study documents the significant interconnection between leadership variables and pregnancy prevention of higher education students. Teaching leadership has been demonstrated as a key factor in pregnancy prevention, regardless of leadership style. From students' perspective, the leadership style of university teachers is rated as 55.5% high level *Laissez Faire* leadership. Regarding types of pregnancy prevention, we found that 44.4% are a result of teachers high level instruction of primary prevention.

## Limitations

Limitations and bias may be related to answers provided by college students in the presence of their teacher, or because of misinterpretation/misunderstanding of some questions. This inconvenience was avoided by allowing students to answer questions in the absence of the teacher and providing the research team's assistance in clarifying doubts or mistakes that may arise. Hence, the research group contributed to elucidate unclear situations that occur during the survey. Directors of César Vallejo University authorized the development of the study and approved the time for its application.

## Generalizability

Results can be considered as part of a general situation that exists at different universities of the country, as students

**Table 3.** Distribution of teaching leadership styles based on student survey results.

Student perspective	Transformational		Transactional		Laissez faire	
	Fi	%	Fi	%	Fi	%
High	400	50.4	408	51.5	440	55.5
Medium	343	43.3	351	44.3	309	39.0
Low	50	6.3	34	4.3	44	5.5
Total	793	100.0	793	100.0	793	100.0

**Table 4.** Level of pregnancy prevention exercised by students over the first semester.

Level of prevention	First		Second		Third	
	Fi	%	Fi	%	Fi	%
High	352	44.4	287	36.2	295	37.2
Medium	267	33.7	273	34.4	290	36.6
Low	174	21.9	233	29.4	208	26.2
Total	793	100.0	793	100.0	793	100.0

**Table 5.** Evaluation of university teaching leadership style, which significantly affects the prevention of pregnancy of students at the beginning of their higher education studies in the San Martín region (year 2018).

Teaching leadership style	Level of prevention			Total	X2 p < 0,05
	High	Medium	Low		
Transformational					
High	217	65	118	400	X2 =136,390 p =0,0000
Low	7	32	11	50	
Medium	77	79	187	343	
Total	301	176	316	793	
Transactional					
High	210	72	126	408	X2 =95,539 p =0,0000
Low	8	18	8	34	
Medium	83	86	182	351	
Total	301	176	316	793	
Laissez Faire					
High	216	69	155	440	X2 =80,557 p =0,0000
Low	7	29	8	44	
Medium	78	78	153	309	
Total	301	176	316	793	

starting their studies have the highest dropout rate, caused by pregnancy. In addition, the teacher is not only the facilitator of learning, but also a dynamic person, who exercises leadership by advising, mentoring, and guiding university students toward sustainable learning. Teachers are engaged active human beings, who can make positive decisions on students' lives.

## Conclusions

Based on our statistical analysis, one can conclude that for college students, teaching leadership style significantly affects the prevention of adolescent pregnancy. We believe that this is an important finding, which complements a prior study (Jordán & Blanco, 2015) that focused on the importance of health education in the higher education system.

## Data availability

### Underlying data

Figshare: Datasets, <https://doi.org/10.6084/m9.figshare.13385612.v1> (Contreras, 2020).

### Extended data

Figshare: Survey, <https://doi.org/10.6084/m9.figshare.13385405.v1> (Contreras & Lowy, 2020).

Data are available under the terms of the [Creative Commons Attribution 4.0 International license](#) (CC-BY 4.0).

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## References

Anzoategui J: **Plan de Intervención Educativa para la Prevención de Embarazo en la Adolescencia**. El Centro de Tesis, Documentos, Publicaciones y Recursos Educativos más amplio de la Red. Términos y Condiciones. 2015; (Accessed: January 21, 2021).

[Reference Source](#)

Arroyave K, Cuartas Y, García J: **Concepciones sobre la maternidad y paternidad en adolescentes de la Institución Educativa Jaime Salazar Robledo**. Colombia. 2015; 7–8. (Accessed on January 15, 2021).

[Reference Source](#)

Boone HN, Boone DA: **Analyzing likert data**. *J of extension*. 2012; 50(2): 1–5.

[Reference Source](#)

Contreras: **Datasets**. *figshare*. Dataset. 2020.

<http://www.doi.org/10.6084/m9.figshare.13385612.v1>

Contreras, Lowy DA: **Survey**. *figshare*. Journal contribution. 2020.

<http://www.doi.org/10.6084/m9.figshare.13385405.v1>

Jordán Padrón M, Blanco Pereira ME: **Educación sanitaria integral del adolescente en el Instituto Preuniversitario Urbano José Luis Dubrocq, de Matanzas**. *Revista Médica Electrónica*. 2015; 37(3): 197–206.

[Reference Source](#)

Newman K, Harrison L, Dashiff C, et al.: **Relaciones entre los tipos de padres y comportamientos de riesgo en la salud del adolescente: una revisión bibliográfica integrada**. *Rev Latino-América Enfermagem*. 2008; 16(1): 142–150.

[Publisher Full Text](#)

Ramírez E, Contreras G: **Las competencias docentes de los profesores del**

**nivel medio superior sobre el tema de sexualidad y el VIH/SIDA**. (Tesis de licenciatura). Universidad Autónoma del Estado de México. México. 2013. 2013; (Accessed: January 6, 2021).

[Reference Source](#)

Reátegui B, Carranza K: **Influencia del liderazgo docente en la prevención del embarazo adolescente en estudiantes del 5to año de secundaria de la Institución Educativa "Francisco Izquierdo Ríos", distrito Morales, región San Martín, año 2016**. (Tesis de licenciatura). Universidad Nacional de San Martín Tarapoto. Perú. Recuperado de. 2016; (Accessed: November 7, 2020).

[Reference Source](#)

Rosario L: **Estilos de liderazgo de los maestros y maestras de salud escolar del nivel secundario en la implantación del programa de educación en salud escolar**. *Universidad del Turabo*. (Ph.D. Dissertation). Escuela de Educación. Puerto Rico. 2012; (Accessed: December 12, 2020).

UNICEF: **Vivencias y relatos sobre el embarazo en adolescentes. Una aproximación a los factores culturales, sociales y emocionales a partir de un estudio en seis países de la región informe final**. Oficina Regional para América Latina y el Caribe. Panamá. 2014; (Accessed: January 18, 2021).

[Reference Source](#)

Vásquez D: **Estilos de liderazgo de los docentes del nivel secundario de una institución educativa del distrito de la Perla-Callao**. (Tesis de maestría). Universidad San Ignacio de Loyola. Facultad de Educación Programa Académico de Maestría en Educación para Docentes de la Región Callao. Lima Perú. 2012.

[Reference Source](#)

# Open Peer Review

Current Peer Review Status: ?

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Version 1

Reviewer Report 14 April 2022

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? **Seyed Ali Azin** 

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Although the result of the research seems logical, the article has many ambiguities:

1. Teaching leadership styles are described very briefly. Also, "Types of pregnancy prevention" is not clear at all. In both cases, if the reader does not refer to the text of the questionnaire, he/she cannot get a clear picture of the concepts stated in the article; for instance, in public health discourse, primary pregnancy prevention often refers to the use of contraceptives.
2. Why and how was the ACE questionnaire used to develop and validate the research tool?
3. The content of the tables also does not help much to clear up the ambiguity. For example, the basis of the cut-off points for the "teaching level" score is not clear.

Overall, it seems that in order to communicate better with the reader, the article needs to be seriously revised.

**Is the work clearly and accurately presented and does it cite the current literature?**

No

**Is the study design appropriate and is the work technically sound?**

Partly

**Are sufficient details of methods and analysis provided to allow replication by others?**

No

**If applicable, is the statistical analysis and its interpretation appropriate?**

Partly

**Are all the source data underlying the results available to ensure full reproducibility?**

Partly

**Are the conclusions drawn adequately supported by the results?**

Yes

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Social Medicine/Sexual Health, Sexual Medicine

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.**

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