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RESEARCH ARTICLE

PERCEPTION OF THE PATIENT SAFETY CULTURE BY THE MEDICAL AND NURSING STAFF IN HEALTH INSTITUTIONS IN THE CENTER OF VALLE DEL CAUCA, COLOMBIA

***Carolina Carvajal-Villalba and Luz-Adriana Suarez-Jaramillo**

Research group of Health, Care and Society, Faculty of Health Science, Unidad Central del Valle del Cauca

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ABSTRACT

Objective: To know the perception that health staff has towards safety culture of the patient in institutions of the center of Valle.
Methods: The survey on patient safety culture validated by Agency for Health Care Research and Quality was carried out to 436 people of the following occupations: doctors, nurses and nursing assistants of 18 health institutions of the municipalities of the center of Valle del Cauca.
Findings and conclusion: The dimensions with the greatest number of positive answers were organizational learning/continuous improvement, teamwork inside units and the management support in pursuit of patient safety with80%, 75 % and 75% respectively. On the contrary, the dimension non-punitive answer to errors with 32.2% and the staffing with 34% were the worst rated. It was evidenced organizational learning/continuous improvement, teamwork inside units and the management support in pursuit of patient safety as strengths, and non-punitive answer to errors as well as staffing as improvement opportunities.

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INTRODUCTION

Patient safety culture is construed as the set of structures and organizational processes in order to identify, inform, research and take corrective actions over incidents and adverse events (Garib, 2003) that are caused as consequence of health care in a health institutions. This involves all the actors in the health system, and it is a subject having become more important through years taking into account the increase of adverse events globally (Jaime Eduardo Ordóñez Molina, 2008). Every year, tens of millions patients around the world are harmed or die as consequence of a non-safety health care (Dirección General De Calidad De Servicios Usdn, 2013). The culture of institutional security allows the appropriation of values, attitudes, perceptions, competencies and individual and group behavior patterns that determine the commitment of all the staff of the institution to the patient safety (suitable interpersonal communication, confidence of the effectiveness of shared measures, self-reporting environment without fear of speaking freely of its faults, etc.) (Ministerio De La Protección Social, 2008). This is how the patient safety strategy tends to make health institutions and professionals more adept at identifying the most frequent errors occurring during the care process, learning to manage them and preventing them, which is achieved by progressively establishing the patient safety culture (Ministerio De Sanidad, Política Social E Igualdad, 2010). Since health care has gone from being simple to becoming a complex process, through the combination of methods, technologies and human interactions, which have led health workers to make mistakes or to stop preventing them. In this sense, the creation of a safety culture requires the commitment of managers and health personnel in the implementation of management programs of health risk, institutions that have failed to establish this aspect of security, face problems such as ignorance of the factors that predispose the occurrence of adverse events. As well as the fear of the health personnel to report on their errors, and at the same time, the sub-registration in the report of these, which is associated to the increase of the hospital stay and of the direct and indirect costs for unsatisfactory quality of care. One of the strategies to promote patient safety in health institutions is that there is a culture of security at all levels of the organization, since this allows health personnel to behave according to the different strategies inherent in the security policy of the patient in Colombia. In the case of Valle del Cauca, no available data were available on the prevalence of AE, but the Health Care Quality Observatory (Organización Mundial De Lasalud, 2010) showed that 17.90 of the Institutions Providing Health Services (IPS) in 2012 had managed and analyzed 100% of their AE.

****Corresponding author: Carolina Carvajal-Villalba***
Research group of Health, Care and Society, Faculty of Health Science, Unidad Central del Valle del Cauca.

For Tuluá, the proportion of controlled adverse events was 95.71. However, studies related to safety culture have started in organizations such as aviation, chemical, electrical and nuclear industries (Observatorio de Calidad de la Atención en Salud, 2013), in the hospital environment the safety culture has been studied in countries such as the United States, Belgium, Norway, United Kingdom, Japan, New Zealand and Korea with the aim of investigating the characteristics of attitudes towards security in organizations. A positive culture on patient safety in healthcare institutions is emerging as one of the essential requirements to avoid as far as possible the occurrence of adverse events, and to be able to learn proactively from mistakes, to redesign the processes so that errors do not to be produced again. This is evidenced by the National Quality Forum of the United States, which published a report on good practices or recommendations to improve patient safety in health institutions. And because of its importance has been identified as the first among the practices which substantiates the patient safety policy since its application ensures that health personnel provides care based on safe care practices (Ministerios De Sanidad Y Politica Social, 2009). However, regional and local evidence on the promotion of a safety culture in institutional processes, care processes and the involvement of medical and nursing personnel in reducing the occurrence of adverse events is unknown. In the present study, it was proposed to know the perception that the health personnel have in relation to the culture of patient safety in the institutions of Valle del Cauca, in order to establish a baseline that serves as a starting point for the strengthening the patient safety policy of each institution. As well as contributing to improve knowledge about the characteristics of the patient safety culture and the organizational efforts that are applied to it, in order to align institutional policies towards the creation of safe health environments.

MATERIALS AND METHODS

Participants and the questionnaire implementation

This is an observational, descriptive and cross-sectional study. For its development, 436 surveys were applied to the medical staff, nurses and nursing assistants of 18 health institutions in the municipalities of the center of Valle del Cauca, who agreed to participate in the research of 31 invited institutions. The number of health personnel at each institution was estimated using random sampling stratified by proportional allocation using a 95% confidence level and 5% error in the EPIDAT 3.1 program, while for the selection of participants in each group (doctor, nurse or nursing assistant) of each health institution, a systematic random sampling was used. Therefore, after the acceptance of the participation by the health care institutions to be included in the study, each institution was asked to list the doctors, nurses and nursing assistants with whom it counts and the calculation of the sample as described above. After signing the informed consent, the participants anonymously completed the questionnaire on patient safety culture validated by the Agency for Health Care Research and Quality (AHRQ) (Ministerios De Sanidad Y Politica Social, 2009).

Analysis of results

For the processing and analysis of the results, the data were transcribed from the surveys to a database in Microsoft Office Excel, from where they were exported to the SPSS v20 statistical package. The questionnaire contains questions posed positively and others formulated negatively. In general, the answers to the questionnaire were recoded into three categories according to the following scheme:

Scheme No. 1

Negative		Neutral	Positive	
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Never	Rarely	Sometimes	Almost always	Always

With this coding, the relative frequencies of each category are calculated, for each of the items, as well as for the composite indicator of each dimension. In the initial frequency analysis by items, the original response options are maintained, but for the global analysis by dimensions the scale of the questions that are formulated in the negative direction is reversed to facilitate the analysis. The point estimates for each dimension are accompanied by the corresponding confidence interval (CI) of 95%. The results are presented globally (all institutions) and are distinguished by profession (medicine, nursing and others) and type of service (medical, surgical, intensive care unit [ICU], pharmacy and others). The composite indicators (each of the scale dimensions) are calculated using the following formula:

Σn.º of positive responses in the items of a dimension / n.º of total responses in the items of a dimension.

In order to classify an item or dimension as a strength, the following alternative criteria were used:> 75% positive responses ("agree / strongly agree" or "almost always / always") to questions posed in positive or> 75% negative responses ("disagree / strongly disagree" or "never / rarely") to negative questions. In order to classify an item or dimension as an opportunity for improvement, the following alternative criteria were applied: - 50% negative responses ("disagree / strongly disagree" or "rarely / never") to positive questions or - 50% positive answers ("agree / strongly agree" or "almost always / always") to questions posed negatively.

RESULTS AND DISCUSSION

18 Institutions Providing Health Services belonging to 11 municipalities of the center of Valle del Cauca, such as Andalucia, Bugalagrande, Cerrito, Darien, Geneva, Guadalajara de Buga, Restrepo, San Pedro, Trujillo, Tuluá and Yotoco participated in the study. 67% (n= 12) of the institutions provide services of the first level of complexity, 6% (n= 1) second level and 28% (n= 5) of third level of complexity. As to the distribution of the population per institution, it was found that five institutions concentrate 64% (n= 254) of the research participants in the following way: 26.4% (n= 105) corresponded to institution 05 of level III, 16.4% (n= 65) corresponded to institution 15 of level III, 9.6% (n= 38) to institution 07 of level I, 6.5% (n= 26) to institution 12 of III level and 5% (n= 20) to institution 08 of complexity level I (table 1). 56.7% (n= 225) of the participants work in institutions of III level of complexity, 39% (n = 155) in institutions of level I (table 1). Table 1 shows the percentage distribution of the participants according to the current position. Sixty-two percent (n= 247) of the study participants were nursing assistants, followed by physicians with 16.6% (n= 66), professional nurses with 13.9% (n= 55) (n= 15) and another type of staff 3.5% (n= 14).

Table 1. Characteristics of participating institutions and people

Variable		n	%	Confidence interval 95%
Complexity of the institution	Level I	155	39,0	34,5- 43,8
	Level II	17	4,3	2,3- 6,5
	Level III	225	56,7	51,9- 61,7
Position in the Institution	Professional Nurse	55	13,9	10,3- 17,4
	Doctor	66	16,6	13,1- 20,2
	Medical resident/Training	15	3,8	2,0- 5,8
	Nursing Assistant	247	62,2	57,2- 67,0
	Other	14	3,5	1,8- 5,5
Work area	Various units	47	11,8	8,8- 15,1
	Medicine (non-surgical)	43	10,8	7,8- 13,9
	Surgery	20	5,0	3,0- 7,3
	Obstetrics	24	6,0	3,5- 8,6
	Pediatrics	10	2,5	1,3- 4,3
	Emergency	82	20,7	16,9- 24,4
	Intensive care unit	45	11,3	8,3- 14,6
	Mental Health/Psychiatry	7	1,8	0,5- 3,0
	Rehabilitation	3	0,8	0,0- 1,8
	Laboratory	2	0,5	0,0- 1,3
	Anesthesiology	2	0,5	0,0- 1,3
	Other	112	28,2	24,2- 32,7
Direct interaction with patients	No	20	5,0	3,0- 7,3
	Yes	377	95,0	92,7- 97,0
Time spent working in the institution	Less than 1 year	103	25,9	21,7- 30,2
	From 1 to 5 years	185	46,6	41,6- 51,4
	From 6 to 10 years	61	15,4	12,1- 18,6
	From 11 to 15 years	20	5,0	3,0- 7,1
	From 16 to 20 years	15	3,8	2,0- 5,8
	From 21 years or older	13	3,3	1,8- 5,0
Time spent working in the area	Less than 1 year	131	33,0	28,5- 37,3
	From 1 to 5 years	193	48,6	44,1- 53,4
	From 6 to 10 years	43	10,8	8,1- 14,1
	From 11 to 15 years	12	3,0	1,5- 4,8
	From 16 to 20 years	10	2,5	1,0- 4,0
	From 21 years or older	8	2,0	,8- 3,5
Time in the profession	Less tan 1 year	56	14,1	10,6- 17,6
	From 1 to 5 years	180	45,3	40,3- 50,1
	From 6 to 10 years	84	21,2	17,1- 25,2
	From 11 to 15 years	34	8,6	6,0- 11,3
	From 16 to 20 years	17	4,3	2,3- 6,5
	From 21 years or older	26	6,5	4,0- 9,3
Working hours	<20 hours per week	12	3,0	1,5- 4,8
	20 to 39 hours per week	41	10,3	7,3- 13,4
	40 to 59 hours per week	287	72,3	67,8- 76,8
	60 to 79 hours per week	40	10,1	7,3- 13,6
	80 to 99 hours per week	9	2,3	1,0- 3,8
	100 hours a week or more	8	2,0	,8- 3,5
Degree of patient safety	Acceptable	110	26,6	22,7- 30,7
	Excellent	66	15,9	12,3- 19,6
	Bad	2	,2	0,0- ,7
	Very good	225	54,3	49,3- 59,2
	Poor	11	2,7	1,2- 4,3
Events reported in the last 12 months	No report	232	57,4	52,2- 62,1
	1 to 2 reports	109	27,0	22,5- 31,4
	3 to 5 reports	44	10,9	7,9- 13,9
	6 to 10 reports	14	3,5	1,7- 5,4
	11 to 20 reports	5	1,2	,2- 2,5

Table 2. Results on the safety culture according to dimensions

Dimension on safety culture		Positive Responses (%)	Neutral Responses (%)	Negative Responses (%)
1	Teamwork within the units	75	11.6	13.4
2	Expectations and actions of the supervisor	63.3	16.4	20.3
3	Organizational learning/Continuous improvement	80	11.6	8.4
4	Management support for patient safety	75	13	12
5	General perception on safety culture	56.7	18.8	24.5
6	Communication and information about errors	59.2	25.3	15.5
7	Openness in communication	42.9	32.4	24.7
8	Frequency of reported events	66.4	21.5	12.1
9	Teamwork among units	65	21.3	13.7
10	Staffing	34	22.6	43.4
11	Problems with shift changes among services	66.3	16.9	16.8
12	Non-punitive response to errors	32.2	25.7	42.1

Table 3. Positive responses by dimensions in different institutions

Institution	Dimensions																							
	1		2		3		4		5		6		7		8		9		10		11		12	
	n	%	N	%	n	%	n	%	N	%	n	%	N	%	n	%	n	%	n	%	n	%	n	%
Inst. 01	31	82	21	54	23	61	16	41	14	42	17	44	14	36	12	30	23	62	14	39	25	69	13	35
Inst. 02	48	86	36	64	32	82	26	68	26	57	26	67	18	47	25	66	32	60	8	16	27	51	4	12
Inst. 03	23	74	18	64	14	61	10	42	8	29	9	41	5	24	9	38	16	50	5	17	18	56	3	14
Inst. 04	30	63	17	35	21	60	8	22	14	29	0	0	12	33	29	81	27	56	26	55	32	68	23	64
Inst. 05	329	74	260	58	286	84	268	81	239	56	191	57	124	37	206	62	296	67	129	30	285	64	93	28
Inst. 06	33	85	34	85	22	58	22	55	19	50	19	48	14	35	13	33	35	88	12	32	30	75	11	30
Inst. 07	109	72	106	70	90	79	77	66	92	63	51	46	48	42	62	53	84	54	49	35	82	55	38	35
Inst. 08	61	78	57	71	53	91	48	80	39	57	40	67	34	57	48	84	54	68	23	29	39	49	19	34
Inst. 09	30	83	29	85	23	85	21	81	17	57	19	70	16	59	16	59	27	77	10	29	22	71	11	48
Inst. 10	20	87	10	42	14	78	11	65	10	46	14	78	3	17	11	61	13	62	9	38	12	60	2	11
Inst. 11	36	95	24	60	21	72	18	67	20	53	13	43	12	41	21	78	22	61	13	33	21	60	9	32
Inst. 12	81	69	68	57	67	76	67	78	60	55	68	76	41	46	81	91	77	68	38	35	84	73	30	34
Inst. 13	46	78	36	60	24	59	29	74	26	46	20	44	24	52	19	45	48	89	19	34	40	74	9	21
Inst. 14	24	60	24	65	18	64	15	50	15	44	12	41	12	44	13	45	12	32	10	28	11	31	6	25
Inst. 15	210	75	213	76	174	85	192	92	191	70	165	79	97	47	151	74	195	70	114	41	226	82	82	40
Inst. 16	47	72	38	57	35	70	32	67	36	54	26	51	16	32	36	75	32	49	19	28	34	55	17	34
Inst. 17	59	75	51	65	49	82	38	66	45	60	38	64	24	40	49	85	60	76	28	38	59	77	19	32
Inst. 18	72	82	60	68	55	83	48	77	46	54	39	59	42	64	38	58	48	57	38	48	52	63	18	27

Table 4. Comparison of the dimensions between the medical and nursing staff of each institution (strengths: positive responses> 75%)

Dimensions	Nursing	medicine
Dimension 1 Teamwork	75%	76%
Dimension 2 Expectations and actions of the supervisor	67%	55%
Dimension 3 Learning Org. Continuous improvement	81%	76%
Dimension 4 Support given by Admin. For the patient sec.	78%	65%
Dimension 5 Perceptions	46%	44%
Dimension 6 Communication and inf. about errors	64%	47%
Dimension 7 Openness in communication	45%	38%
Dimension 8 Frequency of reported events	71%	51%
Dimension 9 Teamwork among units	52%	55%
Dimension 10 Staffing	35%	30%
Dimension 11 Problems with shift changes among serv.	67%	65%
Dimension 12 Non-punitive response to errors	33%	35%

In addition, the percentage distribution of the participants according to their main area of work is shown. 20.7% (n= 82) worked in the emergency department, 11.8% (n= 47) worked in different units, 11.3% (n= 45) belonged to the Intensive Care Unit, 10.8% (n= 24) to the area of non-surgical medicine, 6% (n= 24) to obstetrics, 5% (n= 20) to surgery, 2.5% Mental health / psychiatry, and the remaining 1.8% (n= 7) is distributed in the areas of rehabilitation, laboratory and anesthesiology. Finally, 28.2% (n= 112) work in another area, including vaccination, promotion and prevention programs in health posts. 95% (n= 377) of the participants have direct interaction with the patients in the health institutions that work. Regarding the time worked, 46.6% (n= 185) of the health personnel surveyed had been working in the institution between one and five years, 25.9% (n= 103) less than one year.

While 48.6% (n= 772) worked in that area between one and five years, 33% (n= 524) less than one year, 10.8% (n= 172) from 6 to 10 years, 3% (n= 48) from 11 to 15 years, 2.5% (n= 40) from 16 to 20 years and 2% (n= 32) have been working in the same area for more than 20 years. 45.3% (n= 180) of the participants had a professional experience between one and five years, 21.2% (n= 84) from 6 to 10 years, 14.1% (n= 56) less than one year, 8.6 (n= 34) aged 11 to 15 years, 6.5% (n= 26) aged 21 years or more, 4.3% (n= 17) between 16 and 20 years of professional experience. Participants worked between 40 and 59 hours per week, with 10.3% (n= 41) between 20 and 39 hours, 10.1% (n= 40) between 60 and 79 hours, and 3% (n= 12) less than 20 hours, 2.3% (n = 9) from 80 to 99 hours and 2% (n = 8) work 100 or more hours weekly.

The analysis of the results was carried out following the parameters of the AHRQ, which allowed to identify only three dimensions as strengths since they fulfilled the percentages proposed by the instrument. The other dimensions did not reach the established values to be classified as strength or as an opportunity for improvement.

According to the results shown in table 2, the degree of safety in the work area in general is classified as very good or excellent (70.2%, n= 291) and 57.4% mentioned that it has not reported no event related to patient safety in the last year. As shown in table 2, dimensions classified as strength are: organizational learning/continuous improvement (80% positive), followed by teamwork within the units (75% positive) and management support for patient safety (75% positive). Meanwhile, the non-punitive response dimensions to errors, staffing and frankness in communication are the opportunities for improvement found for the institutions in the present study. When analyzing the results by institutions shown in table 3, the non-punitive response dimensions to errors and staffing are maintained in all institutions as an opportunity for improvement. Regarding the perception of culture according to dimensions per profession, table 4 shows that teamwork within the units is a strength for medical and nursing personnel (83%). 16.6% of the institutions, nursing auxiliary staff consider as a strength the expectations and actions of the supervisor to promote patient safety. In 66% of the institutions, doctors and nurses perceive organizational learning and continuous improvement as positive. In general terms, the different dimensions of the patient safety culture referred to by the

medical and nursing staff of the health centers of the center of Valle del Cauca, made it possible to highlight organizational strengths, teamwork within the units and support of management for patient safety, and as opportunities for improvement, the non-punitive response to errors and staffing. The dimensions of expectations and actions of the supervisor, general perception on safety culture, frequency of reported events, and problems of shifts changes between services should be strengthened to become strengths for institutions. In general, nurses have more positive perceptions about the safety culture than medical personnel. The dimensions with the greatest number of negative responses coincide between doctors and nurses. Regarding the perception of teamwork climate, there is a relationship between the medical and nursing staff, due to the fact that in 83.3% (n= 15) of the institutions there is a positive response ranging from 75% to 100% representing a strength for this dimension. In 16.6% (n= 3) of the institutions it appears as weakness. Related to the expectations and actions of the supervisor in 61.1% (n= 11), this strength was observed by medical and nursing staff, while in 22.2 (n= 4) of the institutions evidence this dimension as weakness. The analysis of dimension 3 showed that 88.8% (n= 16) of the institutions presents strengths perceived by the medical and nursing staff. The dimension four shows that 77.7% (n= 14) of the institutions are perceived by the medical and nursing staff as a strength. With regard to the general perceptions dimension of patient safety, 16.6% (n= 3) of the institutions are perceived by the medical staff as strength, while in 83.3 (n= 15) patient safety is considered as an opportunity for improvement. Regarding communication and information about errors, it is evident that in 50% (n= 9) of the institutions, nurses perceive this dimension as a strength.

Dimension seven shows that in 22.2% (n= 4) of the institutions, frankness in communication is classified as strength. However, it should be mentioned that there are four different institutions where this positive result was observed, that is to say, there is no evidence of a relationship between the perception of the same personnel of each institution. 66.6% (n= 12) of the institutions are perceived as institutions that frequently report adverse events; however the largest report is observed by the nursing staff. 66.6% (n= 12) of the institutions are perceived as institutions working as a team, observing the relationship between the medical and nursing staff. With regard to staffing, it is evident that 11.2% (n= 2) of the institutions is perceived as a strength in this dimension. It should be mentioned that this response is made in equal proportion to the medical and nursing staff. 61.1% (n= 11) of the institutions are perceived as a strength in this dimension, evidencing a greater positivity by the nursing staff in relation to the physician. Regarding the non-punitive response, it was found that 11.1% (n= 2) of the institutions was perceived with strength in this dimension, showing similarity between doctors and nurses. The results obtained allow us to identify that the overall perception in the study was 56.7% higher than the one reported by Fajardo (49%) (10). The lowest dimension was the non-punitive error response with 32% in contrast to Saturno's (52.9%) (11). The highest dimension is organizational learning with 80% different from that found by Saturno whose largest percentage was related to teamwork within the service (71.8%). Regarding the report of adverse events, it was found that 57.4% did not report in the last twelve months, unlike the Fajardo study, where the percentage was 77.8%. In 58% of the dimensions, there was a difference between the perception of the medical and nursing staff, the perceived dimension with greater positivity on the part of the medical staff was support given by the administrators for the patient safety. This shows relation with the findings in Saturno's study, where the percentage of responses was significantly lower among doctors, while for nurses the best qualified was organizational learning/ continuous improvement. When comparing the dimensions among the institutions, it was evident that those that require improvement in the process are firstly, staffing with the lowest percentage in 15 of the 18 institutions, which coincides with Saturno where this dimension was found in all three groups of hospitals studied. For the staffing and non-punitive response dimensions, it is evident that only 4 out of 18 institutions were positively perceived by the medical and nursing staff. It was found that seven of the 12 dimensions analyzed have a higher qualification by the medical and nursing staff. Other studies such as Gómez Ramírez (12), Roqueta Egea (13) were checked, since the safety assessment criteria were not performed as the AHRQ stated, the results are not comparable.

Conflict of interest

The authors declare that they have no conflict of interest.

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El evento adverso es definido como un evento imputable a la atención en salud y no derivado de la enfermedad de base o condición de salud del paciente. Estos eventos pueden o no traer aparejado un daño y pueden o no ser atribuibles a un error, o deberse a factores humanos, organizacionales y/o técnicos (8).Garib MC. Gestión de Riesgos en la atención de salud: hacia una cultura de la calidad basada en la seguridad. Revista médica CLC [Internet]. 2003 Octubre de 2003; 14(4):[180-8 pp.].Availablefrom:http://www.clc.cl/Dev_CLC/media/Imagenes/PDF%20revista%20m%C3%A9dica/2003/4%20oct/GestiondeRiesgosatencionsalud-7.pdf

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