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Original article

BELIEF AND ATTITUDES ABOUT VASECTOMY IN STAFF OF A COMMUNITY HOSPITAL IN ARGENTINA: CROSS SECTIONAL STUDY

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Abstract

Introduction: Vasectomy, a surgical contraceptive method, is now part of the mandatory medical plan in Argentina at no extra cost. However, its adoption remains low in many low- and middle-income countries. This study aims to describe the beliefs and attitudes regarding vasectomy among the staff at *Hospital Privado de Comunidad* in Argentina.

Materials and methods: The Beliefs and Attitudes Vasectomy Questionnaire (BAVQ) in Spanish was distributed electronically to the all *Hospital Privado de Comunidad* staff. Higher scores denote more negative attitudes towards vasectomy (score 0 to 135 points). Responses were evaluated for overall survey results and specific factors, and results were categorized by age, gender, and educational attainment.

Results: Four hundred and forty eight members of the hospital participated (66.5% healthcare professionals), with women comprising 64%, and 19% of respondents aged ≥50 years. The BAVQ yielded a global score of 58.7 (SD 9.1). Older participants and those with lower education levels exhibited more negative attitudes. Survey outcomes demonstrated an age-related association both globally and across specific factors. Higher educational attainment correlated with lower BAVQ scores, while gender showed no significant correlation with overall BAVQ results.

Discussion: The study found predominantly negative beliefs and attitudes towards vasectomy, but aspects of virility and fear of surgery were positively perceived, possibly due to the composition of the sample being primarily healthcare personnel. However, the benefits were less favorably regarded.

Key words: vasectomy, family planning, health knowledge, attitudes

Resumen

Creencias y actitudes acerca de la vasectomía entre el personal de un hospital comunitario de Argentina: estudio de corte transversal

Introducción: La vasectomía, método anticonceptivo quirúrgico, ahora forma parte del plan médico obligatorio en Argentina sin costo adicional. Sin embargo, su adopción sigue siendo baja en muchos países de ingresos bajos y medios. Este estudio tiene como objetivo describir las creencias y actitudes respecto a la vasectomía entre el personal del Hospital Privado de Comunidad en Argentina.

Materiales y métodos: El Cuestionario de Vasectomía de Creencias y Actitudes (BAVQ) en español se distribuyó electrónicamente a todo el personal del Hospital Privado de Comunidad. Puntajes más altos denotan actitud más negativa (puntuación 0 a 135 puntos).

Las respuestas se evaluaron según los resultados generales de la encuesta y los factores específicos, y se clasificaron por edad, sexo y nivel educativo.

Resultados: Participaron 448 miembros del hospital (66.5% profesionales de la salud), 64% mujeres y 19% de edad ≥50 años. La BAVQ arrojó una puntuación global de 58.7 (DE 9.1). Los participantes de mayor edad y aquellos con niveles educativos más bajos exhibieron actitudes más negativas. Los resultados de la encuesta demostraron una asociación relacionada con la edad tanto a nivel global como entre factores específicos. Un mayor nivel educativo se correlacionó con puntuaciones más bajas en el BAVQ, mientras que el género no mostró una correlación significativa con los resultados generales del BAVQ.

Discusión: El estudio encontró creencias y actitudes predominantemente negativas hacia la vasectomía, pero percibió que aspectos de virilidad y miedo a la cirugía eran vistos de manera positiva, posiblemente debido a que la composición de la muestra fue principalmente personal de salud. Sin embargo, los beneficios fueron vistos de manera menos favorable.

Palabras clave: vasectomía, planificación familiar, conocimientos-actitudes en salud

KEY POINTS

- The Spanish Beliefs and Attitudes Vasectomy Questionnaire (BAVQ) survey was distributed electronically to all staff at the *Hospital Privado de Comunidad* to evaluate attitudes toward vasectomy. The results showed that:
- The surveyed population had predominantly negative attitudes.
- Older participants and those with lower educational levels exhibited more negative attitudes, reflected in higher BAVQ scores.
- There were no differences in attitudes toward vasectomy based on gender.

Vasectomy, a surgical contraceptive method performed in healthcare settings on an outpatient basis, involves no special preparations and can be conducted under local, spinal, or general anesthesia. It is executed under sterile conditions, entailing the cutting and ligating of the vas deferens to prevent sperm from entering the ejaculate[1]. Although potentially reversible, success rates vary based on surgical expertise, given its technical intricacy[2].

Since 2006, Argentina has regulated vasectomy under the National Sexual Health and Responsible Procreation Program[3] and the law governing surgical contraceptive interventions[4]. It is now part of the mandatory medical plan, entailing no extra costs for those opting for the procedure.

Female sterilization stands out as the most widely utilized surgical contraceptive globally[5]. According to the 2012 guidelines from the European Association of Urology, tubal ligation surpasses vasectomy in popularity, being twice as prevalent in developed nations, eight times more frequent in Asia, and 15 times more common in Latin America and the Caribbean[1]. There seems to be a decline in the utilization of vasectomy, possibly due to associated myths and beliefs, with its usage dropping to a mere 39% of the 2001. The adoption of vasectomy remains negligible or absent across most low- and middle-income countries, with only Brazil, Colombia, and Mexico exhibiting a prevalence exceeding 2% in Latin America

Notably, nations exhibiting minimal gender inequality also tend to report higher vasectomy prevalence rates[5].

Like in other developing regions[6–9], Argentina may harbor similar myths and beliefs regarding vasectomy. Within our hospital, there has been a notable rise in vasectomy procedures over the past three years (Fig. 1). Knowing the beliefs and attitudes of our hospital staff towards vasectomy constitutes the main objective of this study.

Materials and methods

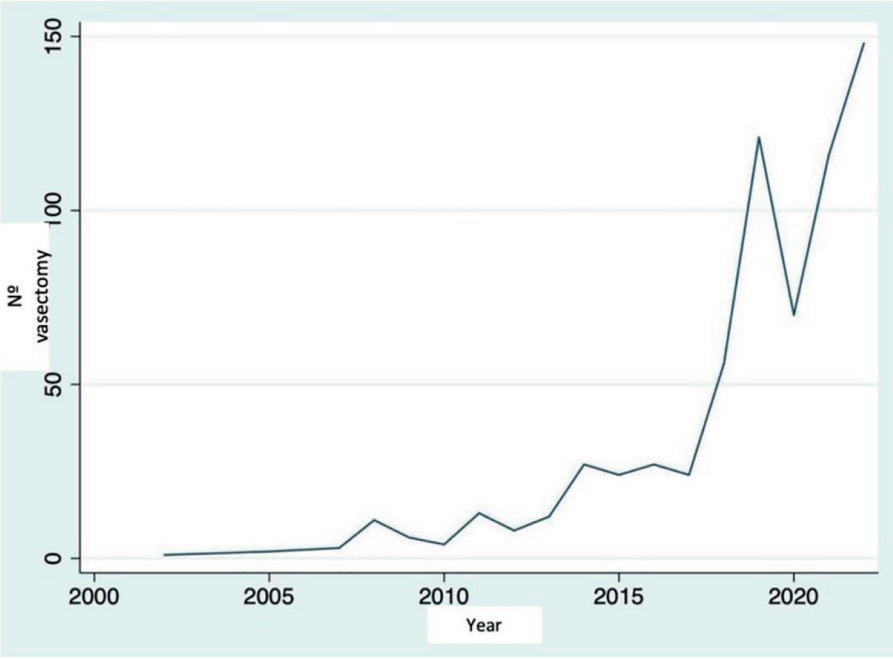
Design and population

Between June and December 2021, a cross-sectional study was conducted at the *Hospital Privado de Comunidad* in Mar del Plata, Argentina. The institution employs 1269 individuals across various roles, including medical, legal, accounting, marketing, janitorial, maintenance, kitchen, cleaning, and administrative staff.

All staff members received an institutional email outlining the study's objective and a link to an anonymous, voluntary survey. Those who had undergone vasectomy were excluded from participating since they actually had positive motivations towards the procedure, which could induce a bias in their responses. To enhance response rates, a follow-up email and a reminder via WhatsApp were sent two months later.

This study received ethical approval from the hospital committee and adheres to the Declaration of Helsinki, with reporting following the STROBE guideline for observational studies[10].

Figure 1 | Number of vasectomies in the hospital over time



Variables and data collection

The Beliefs and Attitudes Vasectomy Questionnaire (BAVQ), validated in Spanish, was employed to assess beliefs and attitudes regarding vasectomy. The survey comprises 27 items[11], each rated on a 5-point Likert scale, ranging from "Strongly Disagree" (1) to "Strongly Agree" (5). It encompasses four factors: decrease in virility (items suggesting concerns about the impact of vasectomy on masculinity and sexual performance), benefits (items acknowledging the positive aspects of vasectomy), fear of surgery (items reflecting apprehension towards the surgical procedure), and negative perception (items expressing unfavorable views about vasectomy). The total score is derived from the sum of scores across all factors, with a maximum of 135 points. Higher scores denote more negative attitudes towards vasectomy.

Furthermore, demographic information such as age, sex, education level, and role within the institution were collected as potential confounding covariates. The completion of the survey required a maximum of five minutes.

Statistical analysis

Numeric variables are described as mean with standard deviation (SD) or the median with percentiles of 25% and 75% (pps 25-75), depending on the distribution. Categorical variables were presented as absolute frequency (n) and percentage (%). For comparing numerical variables, either a t-test or Mann-Whitney test was employed based on the distribution, while categorical variables were compared using the chi-square test or Fisher's test. Linear regression analysis was conducted to evaluate the correlation between variables of interest, such as age strata (20-29; 30-39; 40-49, ≥50), gender (female, male, other), and education level (elementary school, high school, trade or vocational school, university) [12].

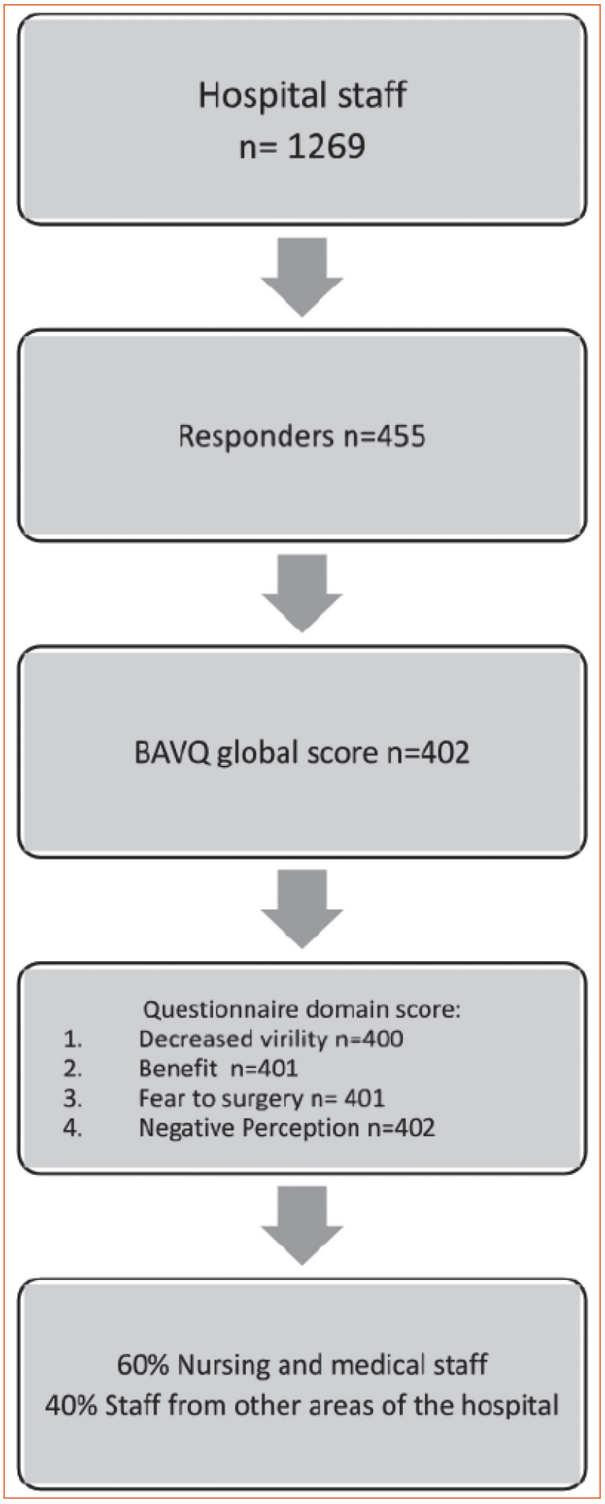
A p-value <0.05 was deemed statistically significant.

Stata/IC 15.1 for Mac statistical software served as the analytical tool.

Results

During the study period, 1269 active workers were contacted, 455 individuals responded to the survey. However, there were incomplete responses across various questionnaire factors, resulting in the evaluation of 402 subjects (Fig. 2). Among the respondents, a majority were women (64%, n=291), with only 19% (n=87) aged 50 years or older, and 63% (n=289) holding a university-level education. Additionally, 66.5%

Figure 2 | Flowchart study populatio



BAVQ: Beliefs and Attitudes Vasectomy Questionnaire

(n=282) were healthcare professionals, including nurses and physicians (Table 1).

The analysis focused on the 402 surveys conducted, revealing a mean global score of 58.7 (SD 9.1). Higher scores indicate more negative attitudes toward vasectomy. The questionnaire scores range from 0 to 135 points. Notably, individuals of older age and lower education levels exhibited more negative results (Table 2, Fig. 3). Across all assessed factors –diminished virility, benefits, fear of surgery, and negative perception– participants aged 50 or older consistently reported more unfavorable responses.

A correlation was observed between survey results at a global level and age, where for every 10-year increase in age, the global score increased by 2.12 points ($p < 0.01$) (Table 3). Education level demonstrated a negative association with the global score, indicating that higher education correlated with lower BAVQ scores, particularly in domains such as fear, negative perception, and diminished virility (Table 3).

While gender did not significantly correlate with the global BAVQ result, females tended to score lower (i.e., more favorable) in certain domains such as benefits, fear, and negative perception (Table 3).

Discussion

To our knowledge, this study is the first in Argentina to assess beliefs and attitudes toward vasectomy. Overall, participants expressed negative attitudes, surpassing the BAVQ's established cutoff (58.7 points)[11].

Despite increasing vasectomy rates locally, akin to other Latin American countries, cultural influences, particularly sexism (*machismo* in Spanish), may hinder the procedure's adoption. Globally, vasectomy rates have declined over the past two decades, particularly in low- and middle-income countries [5].

While the global score worsened with age ($p < 0.001$) and among subjects with lower education levels ($p = 0.03$), no gender differences were observed in beliefs and attitudes regarding vasectomy ($p = 0.81$) in our study. Previous authors noted male gender ideology's highly negative influence on vasectomy in various Latin American

Table 1 | Basal characteristics of the study population

		n (%)
Age (years)		
n=455	20-29	115 (25)
	30-39	151 (33)
	40-49	102 (23)
	≥ 50	87 (19)
Gender		
n=455	Men	159 (35)
	Women	291(64)
	Other	5 (1)
Education level		
n=455	Elementary school	4 (1)
	High school	63 (14)
	Bachelor's degree	99 (22)
	Bachelor's degree or higher	289 (63)
Work performed		
n=424	Non patient-care professional	142 (33)
	Non-physician health worker	137 (32)
	Physician	145 (34)

Table 2 | Description of the global score and each factor of the Beliefs and Attitudes Vasectomy Questionnaire (BAVQ) by strata of age, gender and education level

				Score [media (SD)]			
		Global	p	Decreased virility	Benefits	Fear to surgery	Negatlve perception
All study population (n=402)		58.7 (9.1) (9.1)		7.5 (2.7)	18.7 (7)	4.4 (2)	11.9 (3.6)
Age (years)	20-29 (n=115)	57 (7)	<0.001	6 (7.5)	20 (6.7)	4.3 (1.8)	11.5 (2.7)
	30-39 (n=151)	57 (10)		6 (7.7)	20 (7.4)	4.5 (1.9)	11.8 (3.7)
	40-49 (n=102)	61 (8)		6.9 (2.3)	16 (6)	4.3 (2)	11.9 (3.8)
	>=50 (n=87)	62 (8)		7.8 (3.1)	17 (6.5)	4.8 (2.4)	12.9 (4.1)
Gender	Men (n=159)	58 (8)	0.81	-	-	-	-
	Women (n=291)	58 (10)		-	-	-	-
	Other (n=4)	61 (7)		-	-	-	-
Education level	Elementary school (n=4)	63 (11)	0.03	9.5 (7)	20.5(6.6)	4.2 level	16.2 (7.6)
	High school (n=63)	62 (10)		8 (3.1)	17 (6.5)	4.7	12.7 (4.4)
	Bachelor's degree (n=99)	58 (10)		8 (3.2)	20 (7.1)	4.9 (2.3)	12.8 (3.8)
	Bachelor's degree or more (n=289)	58 (8)		7.2 (2.4)	18.5 (7)	4.2 (2.8)	11.4 (3.2)

Figure 3 | Score for each domain of the Beliefs and Attitudes Vasectomy Questionnaire

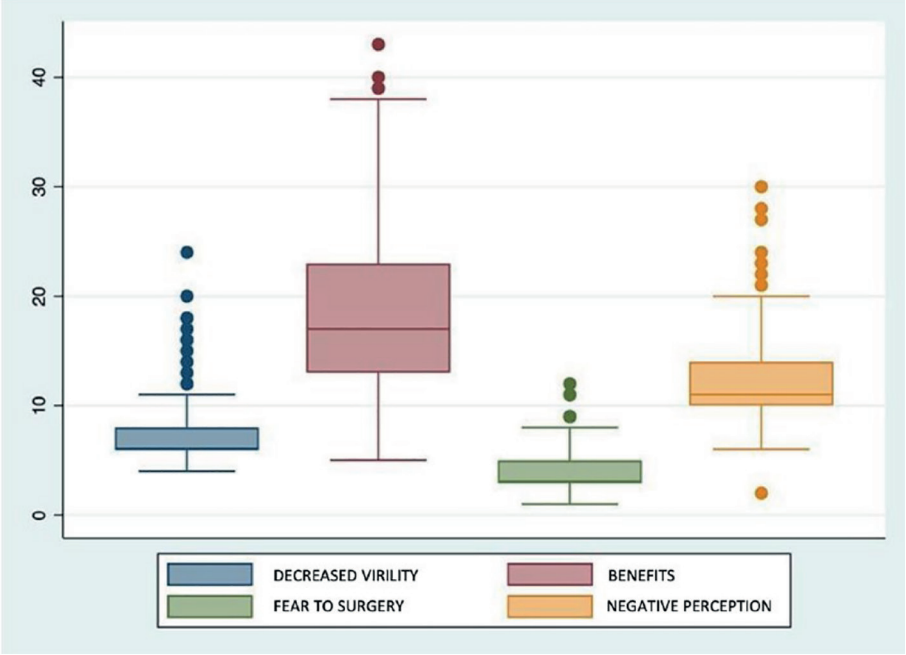


Table 3 | Coefficients of the linear regression of the global Beliefs and Attitudes Vasectomy Questionnaire (BAVQ) and of each factor according to age stratum, education level and gender

	Age (10 years strata)	Education level (primary-university)	Gender
Global	2.12	-1.67	0.12
coef.β (IC95%)	(1.36/2.88)	(-2.96/0.37)	(-0.46/ 0.89)
p value	**<0.001**	**<0.001**	0.7
Decrease in virility	-0.02	-0.53	-0.06
coef.β (IC95%)	(-0.30/0.25)	(-0.98/-0.08)	(-0.4/0.27)
p value	**<0.001**	**<0.001**	0.7
coef.β (IC95%)	(-2.15/-0.89)	(-0.87/0.91)	(-1.80/-0.44)
p value	**<0.001**	0.9	**0.001**
Fear to surgery	0.14	-0.28	-0.28
coef.β (IC95%)	-0.06/0.34)	(-0.57/0.009)	(-0.46/-0.09)
P value	0.1	0.06	**0.003**
Negative perception	0.40	-0.89	-0.61
coef.β (IC95%)	(0.06/0.73)	(-1.47/-0.30)	(-1.02/0.19)
p value	**0.020**	0.003	**0.004**

countries (Mexico, Honduras, and Nicaragua), including Latino communities in the USA[12]. In New Zealand, vasectomy prevalence remains high across socioeconomic statuses, with factors such as the number of stable partners and the partner's education level identified as influencers. Catholicism correlates with lower adoption rates[13]. Before the BAVQ's design, a qualitative study revealed more negative perceptions about vasectomy among men with limited education compared to those with higher academic levels[14]. Our survey echoed similar findings re-

garding negative attitudes towards vasectomy among older individuals. Interestingly, a population study conducted in Nigeria revealed that the perception and acceptance of vasectomy were not influenced by education level. Drawing from experiences in other African nations, it is suggested that counselling and interpersonal communication with patients could be the most effective approach within these cultural contexts[7].

Regarding virility concerns, respondents generally believe the procedure does not impact it significantly (7.5 points out of 35). However, perceptions of benefits, such as effectiveness as a contraceptive method and sexual freedom, were less favorable (18 out of 45), despite a majority (66.5%) of healthcare personnel among respondents. These findings shed light on why tubal ligation remains seven times more prevalent than vasectomy in the US. Globally, vasectomy and tubal ligation rates are equal in only eight countries (Korea, Canada, UK, New Zealand, Bhutan, Netherlands, Denmark, and Austria)[15].

Vasectomy, as a sterilization method for family planning, is recommended for its simplicity, safety, and cost-effectiveness, endorsed by government agencies and scientific societies[1,16–18].

In several countries, diverse strategies have been implemented, including training programs to offer guidance and even tools for performing vasectomies by specialists such as family physicians and obstetrician-gynecologists[19]. This underscores that mere availability and accessibility of the procedure do not ensure its utilization, necessitating specific strategies to boost its adoption and endorsement by professionals[20].

Thirty to forty percent of respondents reported experiencing some degree of apprehension about the procedure or its potential outcomes, while the majority did not harbor negative perceptions regarding the procedure or its outcomes. Our sample comprises individuals with a high level of education, specifically healthcare professionals, whose extensive knowledge about the procedure's efficacy and risk-to-benefit ratio may account for these findings. However, this does not entirely mitigate perceptions and attitudes, particularly concerning certain assessed factors like fear.

Beliefs and attitudes are socially constructed and influenced by various factors such as culture, education level, available information, religion, and gender perspectives on family planning and gender roles, among others[12]. This variability leads to differences in results across the literature[7,9,12,14,19,21,22].

Nonetheless, this study has limitations. The sample was acquired through electronic invitations, which typically yield lower response rates than personal, telephone, or postal surveys, potentially introducing non-response bias[23,24]. To mitigate this, multiple efforts were made, including inviting all hospital service providers via email, reinforcing the invitation, and using another social messaging platform like WhatsApp. These strategies usually increase response rates and mitigate bias[23,24]. The 40% response rate from the accessible population is considered good to very good for electronic surveys, falling within the expected range of 0.39 to 0.52 from this type of survey[24]. Sending surveys to a clearly defined and refined population (all staff members) positively impacts the response rate, as does contacting potential participants in advance and using various reminder methods (emails, email reminders, and WhatsApp messages). Participant age and occupation also play roles in improving response rates in electronic surveys[24]. It is conceivable that participants responded due to their interest in the topic or willingness to collaborate with researchers, given the high proportion of healthcare professionals. The anonymous nature of the survey and its electronic mode of response minimize the possibility of introducing response bias when addressing a sensitive topic [25]. Various factors influence the social construction of perceptions regarding vasectomy, including cultural, religious, professional, and gender perspectives such as notions of virility, the roles of women and men in family planning, and social roles[8,12]. It is possible that the BAVQ does not thoroughly explore aspects related to the underlying reasons and motivations that lead to these results. The interpersonal dynamics surrounding vasectomy decision-making and disclosure remain unknown and could be the platform for future research. Indeed, more studies are needed to investigate the perceptions, beliefs, barriers, and limitations of health professionals regarding the indication/recommendation of vasectomy for

family planning, possibly through qualitative methodologies.

In conclusion, in this study, we elucidated beliefs and attitudes regarding vasectomy within a predominantly healthcare professional population. While perceptions regarding virility factors and fears were favorable, the clarity of benefits remained uncertain even within this select group.

Conflict of interest: None to declare

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