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Yana Carla Bezerra Feitosa de Amorim [1]
0000-0002-7560-9422

Sarah Mendes D'Angelo [1]
0000-0001-7756-2069

Diana Maria de Almeida Lopes [1]
0000-0002-0446-0202

Ana Paula de Souza Rosa [2]
0009-0000-5430-8850

Pedro Ithalo Francisco das Silva [1]
0000-0002-8976-2591

Vanuza Cosme Rodrigues [1]
0000-0003-4395-1888

Jeane Leandro Dias [1]
0009-0004-1852-0108

Maria Iolanda da Silva [1]
0009-0007-3420-3577

Valderi Ferreira de Andrade Neto [1]
0009-0003-1649-165X

Conceição de Maria Lopes de Carvalho [3]
0000-0002-3031-9173

Bruna Monik Morais de Oliveira [1]
0000-0001-5214-897X

Aurileide de Sousa Tavares [1]
0000-0003-2142-6468

[1] *Escola de Saúde Pública do Ceará. Fortaleza, Ceará, Brasil.*

[2] *Universidade Federal do Delta do Parnaíba. Parnaíba, Piauí, Brasil.*

[1] *Secretaria da Saúde do Estado do Piauí. Floriano, Piauí, Brasil.*

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Knowledge of the population about sexually transmitted infections in the district of Pecém-CE, 2024

Conhecimentos da população sobre infecções sexualmente transmissíveis no distrito do Pecém-CE, 2024

Conocimiento de la población sobre infecciones de transmisión sexual en el distrito de Pecém-CE, 2024

ABSTRACT

Objective: To assess the knowledge, attitudes, and practices of the adult population regarding sexually transmitted infections (STIs). **Methods:** Descriptive, cross-sectional study using a household survey. **Results**: The sample was characterized, mostly, by female individuals (77.1%), aged between 20 and 69 years (86.6%), married (37.8%), with elementary school education (44.1%), heterosexual (95.5%), who earned between 0.5 and 1 minimum wage (37.8%). Regarding knowledge and attitudes, 92.9% reported having heard about STIs and 87.3% knew where to seek diagnosis and treatment. Meanwhile 89.9% were familiar with prevention methods. Regarding sexual behavior and health, 97.0% had already become sexually active and 71.6% had a steady partner, but only 30.3% used condoms. **Conclusion**: knowledge about STIs transmission and prevention was considered sufficient. However, the results do not guarantee safe sexual practices, as a considerable number of respondents did not use condoms during sexual intercourse.

Keywords: *Disease Prevention; Sexually Transmitted Diseases; Sexual Behavior; Sexual Health; Health Knowledge, Attitudes, Practice.*

RESUMO

Objetivo: Avaliar o conhecimento, atitudes e práticas da população adulta quanto às Infecções Sexualmente Transmissíveis (ISTs). **Métodos:** Estudo descritivo,

transversal, através de inquérito domiciliar. **Resultados:** A amostra foi caracterizada, em sua maioria, por indivíduos do sexo feminino (77,1%), com faixa etária entre 20 a 69 anos (86,6%), casados (37,8%), com ensino fundamental (44,1%), heterossexual (95,5%), que recebiam entre 0,5 a 1 salário-mínimo (37,8%). Em relação aos conhecimentos e atitudes, 92,9% referiram já ter ouvido falar sobre IST e 87,3% sabiam onde procurar diagnóstico e tratamento. Já 89,9% conheciam os métodos de prevenção. Quanto ao comportamento sexual e saúde, 97,0% já haviam iniciado a vida sexual e 71,6% possuíam um parceiro fixo, porém, apenas 30,3% utilizavam preservativos. **Conclusão:** O conhecimento sobre a transmissão e prevenção das ISTs foi considerado suficiente. Entretanto, os resultados não garantem uma prática sexual segura, pois um quantitativo considerável dos entrevistados não fazia uso de preservativos em suas relações sexuais.

Descritores: *Prevenção de Doenças; Infecções Sexualmente Transmissíveis; Comportamento Sexual; Saúde Sexual; Conhecimentos, Atitudes e Práticas em Saúde.*

RESUMEN

Objetivo: Evaluar los conocimientos, actitudes y prácticas de la población adulta respecto a las Infecciones de Transmisión Sexual (ITS). **Métodos:** Estudio descriptivo, transversal, mediante una encuesta domiciliaria. **Resultados:** La muestra se caracterizó, principalmente, por individuos de sexo femenino (77,1%), con edad entre 20 y 69 años (86,6%), casados (37,8%), con educación primaria (44,1%), heterosexuales (95,5%), con ingresos entre 0,5 y 1 salario mínimo (37,8%). Con respecto a los conocimientos y actitudes, el 92,9% reportó haber escuchado hablar sobre las ITS y el 87,3% sabía dónde buscar diagnóstico y tratamiento. El 89,9% estaba familiarizado con los métodos de prevención. Con respecto al comportamiento y la salud sexual, el 97,0% ya había iniciado la actividad sexual y el 71,6% tenía pareja fija, sin embargo, solo el 30,3% utilizaba preservativos. **Conclusión:** El conocimiento sobre la transmisión y prevención de las ITS se consideró suficiente.

Descriptores: *Prevención de Enfermedades; Enfermedades de Transmisión Sexual; Conducta Sexual; Salud Sexual; Conocimientos, Actitudes y Práctica en Salud.*

INTRODUCTION

Sexually Transmitted Infections (STIs), including HIV-1/2, continue to be neglected as a serious public health problem in Brazil and worldwide, due to their significant burden of morbidity and mortality. Caused by a variety of microorganisms, including bacteria, fungi, viruses, and protozoa, STIs can be transmitted from one person to another, mainly through unprotected sexual intercourse, resulting in significant consequences for individuals' quality of life and for personal, family, and social relationships, particularly among the most vulnerable population groups1,2.

In 2022, the World Health Organization (WHO) estimated that more than 1 million new cases of curable STIs are acquired globally every day, meaning that 357 million people are infected with one of these four STIs: trichomoniasis (*Trichomonas vaginalis*), chlamydia (*Chlamydia trachomatis*), gonorrhea (*Neisseria gonorrhoeae*), and syphilis (*Treponema pallidum*). Therefore, identifying the most vulnerable groups helps to target the best prevention strategies, especially when it comes to confirmed cases of syphilis and HIV3,4.

In Brazil, data recorded in 2023 show the number of confirmed cases of acquired syphilis, which amounted to 242,826, while for congenital syphilis there were 25,002 cases, and syphilis in pregnant women presented 86,111 cases. Regarding HIV infection, 46,495 new cases were reported5.

According to 2023 data from the State Health Plan and 2024 data from the Epidemiological Bulletin of the state of Ceará, 8,234 cases of congenital syphilis and 15,036 cases of syphilis in pregnant women were reported between 2015 and 2024. Regarding HIV/AIDS cases in the same period, 18,987 cases of HIV in adults and 9,720 cases of AIDS were reported in the Notifiable Diseases Information System (SINAN), including 63 cases in children under 5 years old4-6.

In the context of STIs in the municipality of São Gonçalo do Amarante, located in the state of Ceará, only in the years 2022 and 2023 were 14 cases of AIDS and 33 cases of HIV infection reported; however, in 2023, the reported syphilis cases corresponded to 28 cases of syphilis in pregnant women and 14 cases of congenital syphilis5-7.

It is noteworthy that in Pecém, a district of São Gonçalo do Amarante, the Pecém Industrial and Port Complex (CIPP) is located. The CIPP is a port area on the coast of the Brazilian Northeast, important for the economic, social, and technological development of Ceará, in addition to having other economic activities such as tourism, artisanal fishing, handicraft production, and commerce. In these territories, a complex social phenomenon can be observed in the territorial dynamics of the Pecém district.

Therefore, the establishment and execution of significant projects aimed at generating income and jobs, which include changes in territorial dynamics in vulnerable social contexts, are associated with poverty and the high expectations of the local population for formal paid employment opportunities and economic

gains. However, the establishment of different industries around the CIPP can result in a series of negative impacts and public health challenges, as attracting people to this area changes their living and working dynamics, potentially causing so-called "sudden population swelling," increased urban violence, drug use, prostitution, as well as new health risks and conditions8.

In this way, the challenges in the prevention and treatment of STIs with safe, effective, and low-cost therapies require special attention on government agendas, due to the high rates of incidence and prevalence associated with difficulties in accessing, adhering to, and maintaining proper treatment. Added to these factors is the lack of access to health services, as well as underreporting of cases, which contributes to the increase of STIs, specifically in measures to control susceptibilities linked to individual and contextual aspects, among which stand out: Level of education, untimely diagnosis, inadequate treatment, unprotected sexual practices, lack of information, and even myths, fears, and prejudices, all of which have contributed to the spread of STIs9.

In light of this scenario, population surveys are important tools for the formulation and evaluation of public policies, as they allow for an understanding of the epidemiological reality of a given population. Among these, the household survey on knowledge, attitudes, and practices (KAP) stands out, serving as a tool to support health planning and guide decision-making. Despite this, until now there are no publications about this research method applied to STIs in the municipality of São Gonçalo do Amarante/CE. Thus, the present study aims to assess the knowledge, attitudes, and practices of the adult population of the Pecém district regarding Sexually Transmitted Infections.

METHODS

Design and context

Descriptive cross-sectional study with a quantitative KAP-type approach for identifying aspects related to Knowledge, Attitudes, and Practices regarding Sexually Transmitted Infections. The study was conducted in the Pecém district, located in the municipality of São Gonçalo do Amarante, under the Health Region of Fortaleza, in the Decentralized Health Area - ADS Caucaia.

The interviews were conducted in November 2024, in households, commercial establishments, and social venues in the area, according to the spatial distribution of the data collection points, shown in Figure 1.

Figure 1 – Distribution map of data collection points for the household survey on knowledge, attitudes, and practices (KAP) regarding STIs. Pecém District, São Gonçalo do Amarante/Ceará, November 2024.

Source: Own authorship (2024).

Participants, sample, and eligibility criteria

The Pecém district has a population of 15,271 inhabitants, according to information from the individual registry in e-SUS for the year 2024, located approximately 25 km from the municipality of São Gonçalo do Amarante.

The total population during the period consisted of adults of both sexes, over 18 years old, residing in the Pecém district, municipality of São Gonçalo do Amarante, State of Ceará, who voluntarily agreed to participate after reading and signing the Informed Consent Form (ICF). The sample composition was carried out using the convenience sampling technique from the areas of the Basic Health Units (UBS) territories of Planalto, Praia, and Colônia, aiming to facilitate the researchers' movement within the chosen area due to its large territorial extension.

It is noteworthy that, initially, a meeting was held with the Primary Health Care coordination, coordinators, and Community Health Agents (CHAs) from the UBS Planalto, Colônia, and Praia, where it was decided that the interviewers would be accompanied by the CHAs from the territories to be researched. Seven data collection groups were formed, each consisting of one CHA and two researchers for each micro-area assigned to the CHA.

The sample size was measured using the formula for calculating a sample for a finite population, adopting a prevalence of 50%, with a margin of error of 10% and a confidence level of 90%, which corresponded to 261 respondents, to which a 5% data loss rate was added, totaling 274 participants. However, 267 interviews were considered valid, according to the stratification of the population assigned to the areas researched by the UBS. After the survey, the results were shared with the municipal management of the city of São Gonçalo do Amarante through a meeting with the members of the municipal health management, and a fieldwork report was made available.

Data source and variables

Data collection was carried out through interviews and a Household Health Survey, with the aim of characterizing the sociodemographic profile and identifying the perception of knowledge, attitudes, and practices of the adult population regarding Sexually Transmitted Infections.

The data collection instrument consisted of 35 open and closed questions, with variables distributed across three blocks: sociodemographic characteristics (sex, age group, race/color, marital status, sexual orientation, education, occupation, and family income), knowledge and attitudes about STIs according to five variables (heard of STIs, knows where to seek help for STI diagnosis/treatment, knows STI prevention methods, knows or has heard of the female condom, believes that lack of proper hygiene favors STI infection) and behavioral variables regarding health and sexual life (whether you have already started your sexual life, whether you use a condom during sexual intercourse, whether you have access to condoms, whether you have already undergone test(s) and/or laboratory exam(s) to diagnose STIs and where you performed the test(s) and/or exam(s), the main reason for undergoing the test(s) and/or exam(s), whether you have ever had an STI, whether you have undergone any treatment for an STI, whether your partner has been tested for STIs, whether you have ever had any genital (sexual organ) symptoms, whether you have access to condoms, whether you have already undergone test(s) and/or laboratory exam(s) to diagnose STIs and where you performed the test(s) and/or exam(s), whether you have undergone any treatment for an STI.

Data organization and analysis

A data entry form was created for entering the questionnaire data into the public domain software Epi Info™, version 7.2.6.0. After entering the information obtained from the questionnaires into Epi Info™ version 7.2.6.0, the data were analyzed using descriptive statistics tools to calculate absolute and relative frequency measures, as well as to cross variables of interest. The Pearson Chi-square test with Yates correction was used. In contingency tables with cells less than five, the two-tailed Fisher's exact test was applied, with $p < 0.05$

considered significant when there was a statistically significant relationship between variables related to knowledge about STIs and their prevention methods in the survey conducted. The results were presented in tables and charts, and QGIS software was used to create maps.

Ethical considerations

This research respected ethical principles and was approved by the Research Ethics Committee on human subjects of the School of Public Health of Ceará (CAAE: 83864224.9.0000.5037, Opinion Number: 7.238.241) dated November 21st, 2024, considering CNS Resolution No. 466/12, item XI.2.d, CNS Resolution No. 510/16, art. 28, item V, and Resolution No. 580/18 of the National Health Council. The study had the consent of the Health Department of the Municipality of São Gonçalo do Amarante, located in the state of Ceará. All individuals participated after signing the Informed Consent Form (ICF).

RESULTS

Of the 267 respondents, the majority (77.1%) were characterized as female, aged between 20 and 69 years, accounting for 86.6%, and identified as brown (71.5%) "self-reported." Regarding marital status, 37.8% reported being married, followed by 31.5% who were single. In this study, 40.5% of respondents reported having education up to complete high school, and 28.4% stated they had not completed elementary school, meaning they only had incomplete elementary education. As for sexual orientation, the majority of respondents defined themselves as heterosexual, at a rate of 95.5% (Table 1).

Regarding socioeconomic aspects, most were employed as homemakers/housewives (26.2%); however, this information was not filled out in 52/19.5% of the semi-structured questionnaires, and 92/34.5% were classified under other occupations.

Regarding family income, Table 1 shows that the largest group, 37.8% of the population, has an income of 0.5 to 1 minimum wage, while the income of 1 to 2 minimum wages accounts for 28.8% of the population. It is important to note that 12.4% survive on an income of up to ½ minimum wage, with family income being a variable that can determine the characteristics of the population or be a factor influencing their behavior. Concerning the current employment status of the respondents, 55.1% were not working, but it is important to highlight that retirees and beneficiaries of government programs are included in this percentage and contribute to family income. Additionally, 90.8% were not currently studying.

Table 1 – Sociodemographic characterization of the participants in the CAP household survey on STIs. Pecém district, municipality of São Gonçalo do Amarante/Ceará, in 2024 (n = 267).

VARIABLES	n	%
GENDER		
Female	206	77.1
Male	61	22.8
AGE		
18 - 19 years	11	4.1
20 - 29 years	47	17.6
30 - 39 years	49	18.4
40 - 49 years	59	22.1
50 - 59 years	44	16.5
60 - 69 years	32	12.0
70 - 79 years	19	7.1
80+	6	2.2
RACE/COLOR		
Brown	191	71.5
White	35	13.1
Black	35	13.1
Yellow	5	1.9
Indigenous	1	0.4
MARITAL STATUS		
Married	101	37.8
Single	84	31.5
Other	38	14.2
Separated/divorced	27	10.1
Widowed	17	6.4
SEXUAL ORIENTATION		
Heterosexual	255	95.5
Heterosexual	8	3.0
Bisexual	1	0.3
Transsexual	1	0.3
Ignored	1	0.3
I don't know	1	0.3
EDUCATION		
Complete High School	108	40.5
Incomplete Elementary Education	76	28.4
Complete Elementary School	28	10.5
Incomplete High School	27	10.1
Illiterate	14	5.2
Complete Higher Education	9	3.4
Incomplete Higher Education	5	1.8
OCCUPATION		
Other occupations	92	34.5
Housewife	70	26.2

No information	52	19.5
Self-employed	16	6.0
Merchant	12	4.5
Store attendant	8	3.0
Elderly caregiver	7	2.6
General services assistant	6	2.2
Health Agent	2	0.7
Dressmaker	2	0.7
FAMILY INCOME		
Up to half a salary	34	12.7
0.5 to 1 salary	101	37.8
1 to 2 salaries	78	29.2
2 to 3 salaries	29	10.8
Above 3 salaries	7	2.6

Source: Household survey data, 2024.

Table 2 presents the characterization of the study population's knowledge and attitudes, allowing for an assessment of the risk factors for STIs. It is noted that 92.9% of respondents reported having heard of STIs and 87.3% knew where to seek help for diagnosis and treatment if needed. It is also highlighted that 89.9% of respondents were aware of STI prevention methods, including 82.4% who know about or have heard of the female condom. In this same context, 92.5% of the study population believes that inadequate hygiene favors STI infection.

Table 2 – Characterization of knowledge and attitudes of participants in the household survey of CAP on STIs. Pecém District, municipality of São Gonçalo do Amarante/Ceará, in 2024 (n = 267)

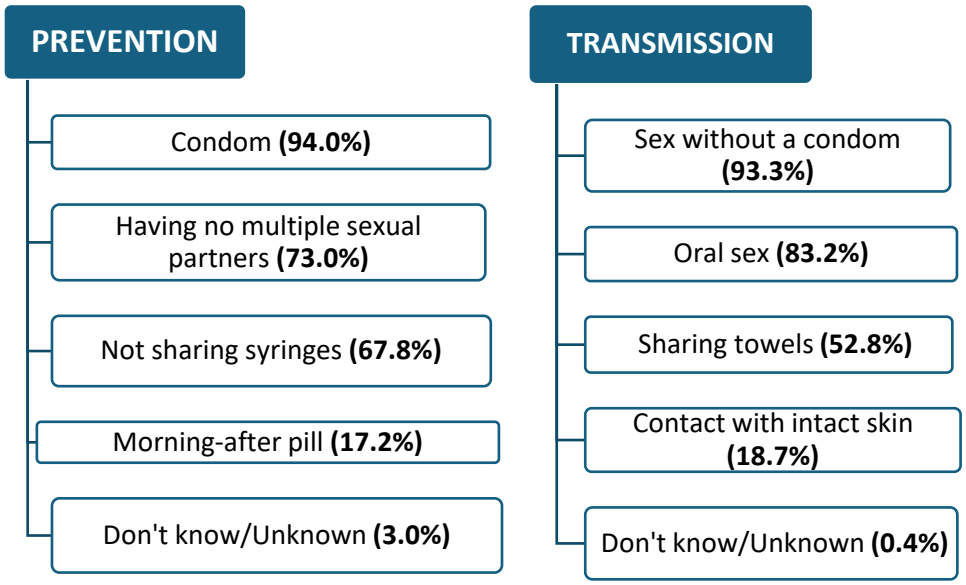
VARIABLES	n	%
1. Have you heard about STIs?		
Yes	248	92.9
No	19	7.1
2. Do you know where to seek help for STI diagnosis/treatment?		
Yes	233	87.3
No	33	12.4
Ignored	1	0.3
3. Do you know the methods for preventing STIs?		
Yes	240	89.9
No	27	10.1
4 . Do you know or have you ever heard about the female condom?		
Yes	220	82.4
No	47	17.6
5. Do you believe that a lack of proper hygiene promotes STI infection?		
Yes	247	92.5
No	13	4.9

I don't know	4	1.5
Ignored	3	1.1

Source: Household survey data, 2024.

Regarding preventive measures related to STIs, most (94.0%) recognized that condoms are a form of prevention. However, 73.0% mentioned that not having multiple sexual partners would prevent STIs, and 67.8% mentioned that not sharing needles would also prevent STIs. It is important to emphasize that 17.2% believe that the morning-after pill is a preventive measure against STIs. As for transmission methods, 93.3% considered sex without a condom to be a risk factor for STI transmission, and 83.2% believe that STIs could be transmitted through oral sex. However, 52.8% believe that sharing towels can be a factor in STI transmissibility (Figure 2).

Figure 2 – Characterization of knowledge about prevention and transmission, according to the CAP household survey on STIs. Pecém District, municipality of São Gonçalo do Amarante/Ceará, in 2024 (n = 267)



Source: Own authorship (2024).

It is noteworthy that 18.7% still believed that contact with the intact skin of an infected person could be a form of transmission, as shown in Figure 2. It was also found that AIDS had the highest percentage (80.1%) among the listed options regarding infections that can be acquired without using a condom, followed by syphilis (214/80.1%) and gonorrhea (213/79.8%).

On the other hand, when asked about contracting STDs in unhygienic public restrooms, the disease with the highest percentage was syphilis, at 80.1%, followed by gonorrhea, at 69.3%, and AIDS, at 63.3%.

Still regarding the performance of tests or laboratory examinations for the diagnosis of sexually transmitted infections, 60.3% reported having been tested for HIV, 53.6% for syphilis, 49.4% for hepatitis B, and 14.6% for hepatitis C. The other STIs had testing rates ranging from 1.5% to 5.6%.

Regarding genital signs associated with STIs, 51.7% of respondents reported not having any of the mentioned signs; among those who reported signs, a percentage of 42.7% was found. Regarding individuals who have had an STI, 10 (3.8%) of the respondents reported having had gonorrhea, followed by syphilis 4 (1.5%), herpes and HPV with 2 (0.8%) each.

Regarding the onset of sexual activity, a similarity was observed in the age range between 10 and 17 years, in both sexes. Concerning sexual behavior and health, 97.0% reported having already started sexual activity, and 71.6% stated they have a steady partner; however, only 30.3% use condoms.

Furthermore, 68.9% stated that they had already undergone tests for STI diagnosis, and only 8.2% reported having been diagnosed with an STI, while 23.6% reported that their partners had also been tested. Among those who underwent testing, 78.8% did so at health centers, 45.7% sought the test on their own initiative, and 50.0% were tested at a doctor's request. It is important to note that 59.6% reported not using condoms, and among those who started STI treatment, 77.3% were able to complete it without interruptions.

When asked about access to condoms, 51.2% of respondents said they have free access, and 5.3% stated that they do not have access to this supply (health product).

In the assessment of the association between participants' education level and prior knowledge about STIs, Table 3 shows a statistically significant association with a p-value of 0.0004, suggesting that higher education levels are associated with a greater likelihood of participants having heard about STIs.

Regarding the level of education and prevention methods, a statistically significant association was found (p = 0.0002), showing that the level of education is related to knowledge about STI prevention methods, with higher education being associated with better knowledge of sexual practices.

Table 3 – Distribution of responses on whether participants have heard about STIs and whether they know the methods of STI prevention, according to the educational level of participants in the CAP household survey. Pecém District, São Gonçalo do Amarante/Ceará, 2024 (n = 267).

ANSWERS IF THEY HAVE EVER HEARD ABOUT THE ISTs							
CATEGORY	**RESULTS**						
	Yes		**No**		**Total**		***p***
Education	**n**	**%**	**n**	**%**	**n**	**%**	
Illiterate	9	3.6	5	26.2	14	5.2	0.0004
Incomplete Elementary Education	72	29.0	4	21.1	76	28.5	
Complete Elementary School	24	9.7	4	21.1	28	10.5	
Incomplete High School	24	9.7	3	15.8	27	10.1	
Complete High School	105	42.4	3	15.8	108	40.4	
Incomplete Higher Education	5	2.0	0	0.0	5	1.9	

Complete Higher Education	9	3.6	0	0.0	9	3.4	
Total	**248**	**92.9**	**19**	**7.1**	**267**	**100.0**	

ANSWERS IF THEY KNOW STIs PREVENTION METHODS

CATEGORY	**RESULTS**						
	Yes		**No**		**Total**		***p***
Education	**n**	**%**	**n**	**%**	**n**	**%**	
Illiterate	8	3.3	6	22.2	14	5.2	
Incomplete Elementary Education	64	26.7	12	44.5	76	28.5	
Complete Elementary School	28	11.7	0	0,0	28	10.5	
Incomplete High School	24	10.0	3	11.1	27	10.1	0.0002
Complete High School	102	42.5	6	22.2	108	40.4	
Incomplete Higher Education	5	2.1	0	0.0	5	1.9	
Complete Higher Education	9	3.7	0	0.0	9	3.4	
Total	**240**	**89.9**	**27**	**10.1**	**267**	**100.0**	

Source: Household survey data, 2024

DISCUSSION

In the present study, the majority of participants were female, accounting for 71.5%. This result is consistent with data from e-SUS of Primary Health Care (PHC), which indicates a population mostly composed of women (54.0%). It is noteworthy that there was a predominance of participants in the occupation category labeled as homemakers, likely due to the time when the research was conducted, given that during business hours, most men are at work. The research findings highlighted an adverse socioeconomic profile for the participants, mostly with a high school education (40.5%), homemakers (26.5%), and 34.5% classified as others (including unemployed individuals and Bolsa Família beneficiaries), with income ranging from half to one minimum wage. Similar results were found in the study by Farias 2019, with low-income conditions and reliance on social programs prevailing[10].

This fact prompted us to a certain reflection: Has the population in the coverage area of the Port of Pecém benefited in joining the labor market, or are the workers mostly from other cities/states? The level of education is a significant factor and corresponded to almost thirty percent (28.4%) of the study sample, that is, they had incomplete elementary school, and a proportion of 5.2% who declared themselves illiterate. So, by drawing this parallel between some sociodemographic variables, we can list (education, occupation, and family income) as predictive factors for the social determination of the health-disease process, understanding the implications of these factors on living and working conditions, and especially on education, since the level of learning and

information that individuals receive throughout educational cycles is intrinsically related, that is, directly connected to their knowledge about their life and health. Thus, the lower the level of education, the more vulnerable people will be to the risks of infections from sexually transmitted diseases, given that even basic knowledge of the syndromic forms of STIs already encourages seeking specialized care in primary health care[10,11].

From a statistical perspective of the education level, there was a statistically significant association with prior knowledge and with STI prevention methods, as well as with the perception that lack of hygiene could facilitate the transmission of STIs. The scientific literature describes an association between lower education and an increased risk of occurrence of these infections[11,12].

STIs still cause uncertainties and doubts among the population studied in the Pecém district, as there are gaps in knowledge about the transmission and prevention of these infections. When asked about how STIs can be contracted in unclean public restrooms, significant gaps in understanding were found, with participants stating that STIs can be transmitted in unclean public restrooms, primarily syphilis (80.1%), followed by gonorrhea (69.3%) and AIDS (63.3%). Furthermore, regarding transmissibility, a considerable proportion, 52.8% and 18.7%, stated that sharing towels and contact with the intact skin of an infected person could be considered forms of transmission. It is worth noting that 17.2% exhibit doubtful and contradictory practices in the area of prevention, believing that the morning-after pill is a measure to prevent STIs.

The results of this research were similar to those of the National PCAP conducted in 2013 by the Ministry of Health, also corroborating the findings of Macedo *et al.*, 2024, Damacena and collaborators 2022, Chaves *et al.*, 2022, and Carvalho *et al.*, 2020, in which it is shown that the population of the Pecém district, in general, has a good level of knowledge about the ways STIs are transmitted and that their behavior influences the occurrence of these infections[11-13,14,15].

However, it was found that this knowledge is not always reflected in sexual practices, as only 30.3% of respondents reported using a condom during sexual intercourse. Considering that the majority of respondents did not use a condom in their sexual relationships, likely due to the fact that the vast majority, 71.6%, had a steady partner since the beginning of their sexual life, which does not guarantee safe sexual practice. On the other hand, the study conducted by Damacena and collaborators in 2022, on knowledge and risk practices for HIV infection in the general population in three Brazilian municipalities, found that 90.0% of respondents believed that condoms are effective for HIV protection, a percentage similar to that found in the population studied in Pecém (93.3%)[13,16-17].

CONCLUSION

Therefore, the research made it possible to assess knowledge about the transmission and prevention of STIs, which was considered sufficient, especially regarding the use of condoms, as well as where they would seek diagnosis and treatment. However, the results do not guarantee the adoption of safe sexual practices, as a considerable number of respondents did not use condoms in their sexual relations.

It is important to highlight some limitations of the research, particularly the administration of questionnaires through face-to-face interviews (researcher and respondent), which may introduce biases, as some information is still very sensitive for our society, causing embarrassment for both the researcher and the respondent and, therefore, may not reflect reality.

It is also worth noting that the fact that the interviews were conducted in the presence of the Community Health Agent for much of the research may have constrained the participants' responses and, thus, limited the findings.

REFERENCES

1. Veras MASM, Dourado I, Bastos FI, Pinheiro TF. Infecções sexualmente transmissíveis e outras questões de saúde de mulheres trans e travestis no Brasil: perfil epidemiológico, vulnerabilidades, acesso a serviços e cuidado. Rev Bras Epidemiol. 2024;27(Suppl1):1-3. DOI: https://doi.org/10.1590/1980-549720240001.supl.1.2.
2. Sousa RFV de, Mallet JR dos S, Nascimento EF do, Cardoso DRF, Neves JMM, Oliveira BFA de. Análise das Infecções Sexualmente Transmissíveis durante a pandemia da COVID-19 no Brasil. REAS [Internet]. 2024 [citado 15 dez. 2025];24(8):1-11. DOI: https://doi.org/10.25248/reas.e18163.2024.
3. Organização Mundial da Saúde. Defining sexual health: Report of a technical consultation on sexual health [online]. Geneva, Switzerland: OMS, 2006 [cited 2024 nov 05]. Avaliable in: https://www.cesas.lu/perch/resources/whodefiningsexualhealth.pdf.
4. Rêgo dos Santos JV, Costa De Araújo Filho WR, dos Santos Morais AL. Epidemiologia de casos de HIV/aids no Ceará nos últimos 10 anos. Cadernos ESP [Internet]. 2025 [citado 04 nov. 2024];19(1)1-9. DOI: https://doi.org/10.54620/cadesp.v19i1.2064.
5. Ministério da Saúde (BR). Pesquisa de Conhecimentos, Atitudes e Práticas na População Brasileira (PCAP:2011). Departamento de DST/AIDS e Hepatites Virais [Internet] Brasília, DF: Ministério da Saúde; 2011. [citado 10 nov. 2025]. Disponível em: https://bvsms.saude.gov.br/bvs/publicacoes/pesquisa_conhecimentos_atitudes_praticas_populacao_brasileira.pdf.
6. Ministério da Saúde (BR). Boletim Epidemiológico HIV, Aids. Secretaria de Vigilância em Saúde e Ambiente. Departamento de HIV, Aids, Tuberculose, Hepatites Virais e Infecções Sexualmente Transmissíveis. Secretaria da Saúde do Ceará. Número 1 [Internet] Brasília, DF: Ministério da Saúde; 2024. [citado 10 nov. 2025]. Disponível em: https://www.saude.ce.gov.br/wp-content/uploads/sites/9/2018/06/

Boletim_Epidemiologico_HIV_Aids_2024_VERSAO01.pptx.pdf
7. Ministério da Saúde (BR). Boletim Epidemiológico Sífilis. Secretaria de Vigilância em Saúde e Ambiente. Departamento de HIV, Aids, Tuberculose, Hepatites Virais e Infecções Sexualmente Transmissíveis. Secretaria da Saúde do Ceará. Número 1 [Internet] Brasília, DF: Ministério da Saúde; 2024. [citado 10 nov. 2025]. Disponível em: https://www.gov.br/aids/pt-br/central-de-conteudo/boletins-epidemiologicos/2024/boletim_sifilis_2024_e.pdf/view.
8. Nuto SAS, Filho EBB, Oliveira BFA, de Freitas RWJ, Jacobson LSV, Hacon SS, et al. Complexo industrial e portuário do Pecém: um inquérito epidemiológico. Cienc Saúde Colet [online]. 2021 [citado 30 out 2025];26(5)1613-24. Disponível em: http://cienciaesaudecoletiva.com.br/artigos/complexo-industrial-e-portuario-do-pecem-um-inquerito-epidemiologico/17979?id=17979.
9. Manjate A, Sergon G, Kenga D, Golparian D, Tyulenev Y, Loquilha O, et al. Prevalence of sexually transmitted infections (STIs), associations with sociodemographic and behavioural factors, and assessment of the syndromic management of vaginal discharge in women with urogenital complaints in Mozambique. Front Reprod Health [online]. Canada, 2024 [cited 2025 nov 12];18(6)1-13. DOI: https://doi.org/10.3389/frph.2024.1323926.
10. Farias KN. Conhecimento e comportamento em relação à transmissão do HIV/AIDS e outras infecções sexualmente transmissíveis em adultos. [Dissertação]. Fortaleza: Universidade Federal do Ceará, Mestrado Profissional em Saúde da Família; 2019. 88p. Disponível em: https://repositorio.ufc.br/handle/riufc/49881.
11. Macedo EP de O, Junta HLM, Ribeiro JS, de Moraes AHN, Krawczyk DA, de Almeida RJ. Conhecimento da população adulta acerca das infecções sexualmente transmissíveis. Brazilian Journal of Health Review [internet]. 2024[citado 04 nov 2025];7(1):6237-50. DOI: https://doi.org/10.34119/bjhrv7n1-501.
12. Moura SLO, Silva MAM, Moreira ACA, Pinheiro AKB. Relações de gênero e poder no contexto das vulnerabilidades de mulheres às infecções sexualmente transmissíveis. Interface [internet]. 2022[citado 03 nov 2025]; 26 (Supl. 1). DOI: https://doi.org/10.1590/interface.210546.
13. Damacena GN, Cruz MM, Cota VL, Júnior PRBS, Szwarcwald CL. Conhecimento e práticas de risco à infecção pelo HIV na população geral, homens jovens e HSH em três municípios brasileiros em 2019. Cad Saúde Pública [internet]. 2022[citado 04 nov 2025]; 38(4):1-14. DOI: https://doi.org/10.1590/0102-311XPT155821.
14. Chaves AFL, Tavares TT, Costa EC, Maciel NS, Ferreira DS, Martins FVA, et al. Conhecimento, atitude e prática de universitários intercambistas africanos acerca das Infecções Sexualmente Transmissíveis. Esc Anna Nery [internet]. 2022[citado 04 nov 2025];26:1-9. DOI: https://doi.org/10.1590/2177-9465-EAN-2021-0455pt.
15. Carvalho RXC, Araújo TME. Conhecimentos, atitudes e práticas de adolescentes universitários sobre sífilis: estudo transversal no Nordeste. Rev Saúde Pública [internet]. 2020[citado 15 out 2025];54(120). DOI: https://doi.org/10.11606/s1518-8787.2020054002381.
16. Barbosa KF, Batista AP, Nacife MBPL, Vianna VN, Oliveira WW, Machado EL, et al. Fatores

associados ao não uso de preservativo e prevalência de HIV, hepatites virais B e C e sífilis: estudo transversal em comunidades rurais de Ouro Preto, Minas Gerais, entre 2014 e 2016. Epidemiol Serv Saúde [online]. 2019[citado 30 out 2025];28(2)1-12. Disponível em: https://www.scielo.br/j/ress/a/MhBQs3hjd9WfFgJvH3G7skv/?format=pdf&lang=pt.

17. Soares JP, Teles SA, Caetano KAA, Amorim TF, Freire MEM, Nogueira JA, et al. Factors associated with sexually transmitted infections in sugarcane cutters: subsidies to caring for. Rev Lat Am Enfermagem [online]. 2020[cited 2025 nov 04]; 28:e3306. DOI: https://doi.org/10.1590/1518-8345.3425.3306.

Corresponding Author

Yana Carla Bezerra Feitosa de Amorim
yana.feitosa@gmail.com

Author Contributions

Conceptualization: YCBFA, DMAL, APSR, PIFS, VCR, JLD, MIS, VFAN, CMLC, BMMO, AST; **Data curation:** YCBFA, DMAL, APSR, PIFS, VCR, JLD, MIS, VFAN, CMLC, BMMO, AST; **Formal analysis:** YCBFA, DMAL, APSR, PIFS, VCR, JLD, MIS, VFAN, CMLC, BMMO, AST; **Funding acquisition:** YCBFA, DMAL, APSR, PIFS, VCR, JLD, MIS, VFAN, CMLC, BMMO, AST; **Investigation:** YCBFA. DMAL, APSR, PIFS, VCR, JLD, MIS, VFAN, CMLC, BMMO, AST; **Methodology:** YCBFA, DMAL, APSR, PIFS, VCR, JLD, MIS, VFAN, CMLC, BMMO, AST; **Project administration:** YCBFA, DMAL, APSR, PIFS, VCR, JLD, MIS, VFAN, CMLC, BMMO, AST; **Resources:** YCBFA, DMAL, APSR, PIFS, VCR, JLD, MIS, VFAN, CMLC, BMMO, AST; **Software:** YCBFA, DMAL, APSR, PIFS, VCR, JLD, MIS, VFAN, CMLC, BMMO, AST; **Validation:** YCBFA, DMAL, SMD, APSR; **Visualization:** YCBFA; **Writing – original draft:** YCBFA; **Writing – review and editing:** YCBFA, DMAL, APSR.

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