

Female Genital Injury Resulting from Consensual and Non-Consensual Vaginal Intercourse at Police General Hospital

Nichaphat Kongtanajaruanun MD¹, Seree Teerapong MD¹, Athirat Janpanichjaroen PharmD²

¹ Department of Obstetrics and Gynecology, Police General Hospital, Bangkok, Thailand

² Department of Pharmacy, Police General Hospital, Bangkok, Thailand

Objective: To determine the difference of location and pattern of genital injury between consensual and non-consensual vaginal intercourse at the Police General Hospital, Thailand.

Materials and Methods: Retrospective review of sexual assault records at the Police General Hospital between January 1 and December 31, 2013.

Results: Six hundred thirteen females, including 358 non-consensual and 255 consensual, were included. Most of both groups were between 13 and 15-year-old, and single. In the consensual victims, 63.92% were assaulted by their lovers, while 30.73% of non-consensual victims were assaulted by their friends. The non-consensual victims had higher rate of injury than consensual victims. The location of most injuries in both groups were hymen (30.45% vs. 10.59%, $p < 0.000$), followed by labia minora (15.92% vs. 7.06%, $p = 0.001$), vagina (4.19% vs. 1.96%), external genitalia (3.07% vs. 2.75%), and labia majora (1.68% vs. 1.57%). Consensual victims did not have more injuries more than non-consensual victims (4.31% vs. 1.40%, $p = 0.026$). Laceration wounds were found the most (28.49% vs. 10.59%, $p < 0.000$) in non-consensual and consensual group. In addition, abrasions (13.97% vs. 5.88%, $p = 0.001$), and contusion wounds were found the least (8.94% vs. 3.14%, $p = 0.004$).

Conclusion: Most of the victims were 13 to 15-year-old, single, and knew the assailants. In the non-consensual group, laceration, abrasion, and contusion wound were found more often, with statistical significance, at hymen and labia minora than in the consensual group. An interesting point is that similar wounds were found in sexual organs of consensual or non-consensual victims. This may help diagnose the wounds of the assaulted victims with unclear profiles.

Keywords: Sexual assault, Consensual, Non-consensual vaginal intercourse

J Med Assoc Thai 2018; 101 (1): 7-12

Website: <http://www.jmatonline.com>

Sexual assaults are a major problem all over the world effecting the victims and their families physically, mentally, and socially. Regarding legal problems, there are consensual and non-consensual assaults. Master and Johnson's theory proposed that a woman's natural sexual responses is able to safeguard her against injury during consensual intercourse⁽¹⁾. The physiologic changes that are associated with human sexual responses include lubrication, increased muscle tension, and vaginal outlet lengthening. When having normal intercourse with sexual partners, women are protected from genital injury. In contrast, when there is a sexual assault, those natural protective responses are lacking, leading to genital injury. Such injury may be different between consensual and non-consensual

intercourse⁽²⁾.

There are few sexual assault cases in Thailand. Suthaporn et al⁽³⁾ reviewed 557 cases of sexually abused adolescents and adults from the Police General Hospital. The report showed the differences between genital injury in both groups. Hymen was the most common site of genital injuries (21.5%) in adolescents. Labia minora injury is more common in adults than adolescents. Pacharabumrung et al⁽⁴⁾ reviewed 124 cases from the Police General Hospital of children that were sexually abused. Genital trauma were 40.8%, which were more common in early childhood as compared to late childhood. Genital penetration were found in 26.7% of the cases. However, there is no comparative study of genital injury between consensual and non-consensual sexual assaults in Thailand.

The objective of the study was to determine the location and the pattern of genital injury between consensual and non-consensual vaginal intercourse.

Correspondence to:

Teerapong S. Department of Obstetrics and Gynecology, Police General Hospital, 492/1 Rama I Road, Pathumwan, Bangkok 10330, Thailand.

Phone: +66-2-2076000, Fax: +66-2-2517755

Email: drseri@gmail.com

How to cite this article: Kongtanajaruanun N, Teerapong S, Janpanichjaroen A. Female genital injury resulting from consensual and non-consensual vaginal intercourse at Police General Hospital. J Med Assoc Thai 2018;101:7-12.

Materials and Methods

Study design

Descriptive study with retrospective data collection of sexual assault victims' medical records between January 1 and December 31, 2013 at the Police General Hospital.

Sample size

Sample size was calculated from the population in 2012 at Police General Hospital.

$$N = \frac{2(Z_{\alpha/2} + Z_{\beta})^2 PQ}{d^2}$$

where

P = $\frac{1}{2}(P_1 + P_0)$, the expected prevalence

Q = 1 - P

d = P1 - P0, desired/absolute precision

P1 = percentage of non-consensual group with genital injury in 2012

P0 = percentage of consensual group with genital injury in 2012

$Z_{\alpha/2} = 1.96$

$Z_{\beta} = 0.84$

two sides, power = 80%, $\alpha = 0.005$

$$N = \frac{2(1.96+0.84)^2 (\frac{1}{2}(0.3333+0.2174)(1-0.27535))}{(0.3333-0.2174)^2}$$

N = 232 (per group)

Inclusion criteria

1. Female aged 13 years or over
2. Penile-vaginal rape
3. Between January 1 and December 31, 2013

Exclusion criteria

1. Dead victims
2. Incomplete medical record

Ethical consideration

1. The data collection performed confidentially by group of medical researcher.
2. All of medical records were reviewed only in the medical documentary room and were not taken out of the room.
3. The study was approved by the Ethic Committee of the Police General Hospital, Thailand.

Definition

Sexual assault (non-consensual): any form of forced or inappropriate unwanted sexual contact ranging from forced touching or kissing to verbally or physically coerced vaginal, oral, or anal penetration.

This included situations in which the victim is unable to consent because of intoxication, inability to understand the consequences, misperceptions because of age, or other incapacities^(5,6).

Consensual intercourse: both people agree to have sex together and nobody is coerced (manipulated) into having sex against their desires.

Data collection

All data were collected retrospectively through a medical records of sexual assault cases examined in a sexual assault forensic examiner program at the Police General Hospital.

Sociodemographic of victims such as age, nationality, marital status, occupation, income, alcohol use relevant, drug use relevant, previous sexual intercourse, and time from assault to examination were recorded. Assailant characteristics such as age, nationality, number of sexual intercourse, number of assailant, condom use, and relationship were recorded.

Location and type of genital injury were recorded.

Statistical analysis

Data were analyzed by computer statistical program Stata version 12. Demographic characteristics were described by percentage and number. Chi-square and Fisher's exact probability test for determined the characteristic, the location, and the pattern of genital injury between the consensual and non-consensual groups. A *p*-value of less than 0.05 was considered significant.

Results

From the Figure 1, the total number of sexual assault victims (both consensual and non-consensual groups) diagnosed at the Police Hospital was 760 cases. After screening out (one male patient, 23 incomplete medical record, and 124 children under 13 years old), 613 female patients were included in this study, including 358 non-consensual (58.40%) and 255 consensual (41.60%).

Table 1 shows the characteristics of sexual assault victims. Most of the women were Thai, 229 of them were consensual (89.8%) and 342 were non-consensual (95.53%) (*p* = 0.006). Most were between 13 and 15-year-old, which 154 were consensual (60.63%) and 128 were non-consensual (35.75%) (*p*<0.000). Most of the women were single with 251 consensual (98.53%) and 322 non-consensual (89.94%) (*p*<0.000). Most of them were students/university students, which 134 were consensual (52.55%), and 142 were non-

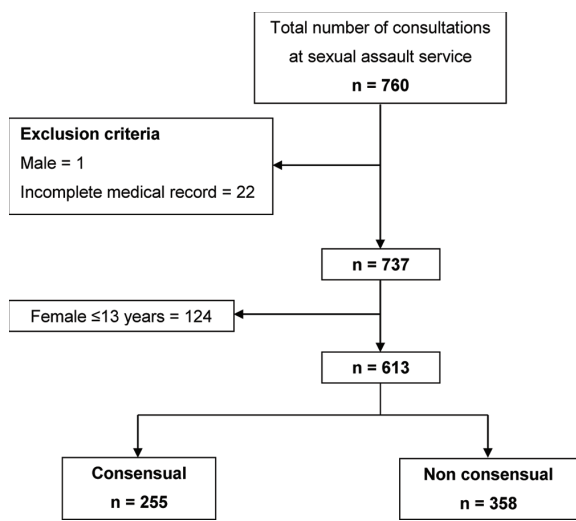


Figure 1. Flow chart.

consensual (39.66%) ($p < 0.000$). In the unemployed victims, 191 were consensual (74.90%) and 209 were non-consensual (58.38%) ($p = 0.002$). Neither groups consumed alcohol, which 231 were consensual (90.59%), and 302 were non-consensual (84.36%) ($p = 0.024$). Most of them have had sexual relations before, which 131 were consensual (51.37%), and 240 were non-consensual (67.04%) ($p < 0.000$). For the time from intercourse to examination, 139 consensual victims (54.51%) came for examination within seven days, while 230 non-consensual victims (64.24%) would do within three days ($p < 0.000$).

Table 2 shows the characteristics of assailants and assault. The age ranges of the assailants were different in the consensual and non-consensual groups. The assailants that attacked 91 consensual victims (47.89%) were 15 to 19 years old, while 93 non-consensual victims (34.57%) were attacked by 20 to 29 years old assailants ($p < 0.000$). The repetition of sexual assault in 204 consensual victims (80%) was found for the second time or more, while in 203 non-consensual victims (56.70%) the repeat sexual abuse was found only once ($p = 0.000$). Most of the assailants abused without using condoms as reported by 162 consensual victims (63.53%) and 305 non-consensual victims (85.20%) ($p < 0.000$). Most of the assailants knew the victims as reported by 163 consensual victims (63.92%), which they were their lovers. In the 110 non-consensual victims (30.73%), the assailants were their friends ($p < 0.000$).

Table 3 shows the location of genital injury of the victims. Hymen was the injury location found

most often in both groups, in 27 consensual victims (10.59%) and in 109 non-consensual victims (30.45%) ($p < 0.000$). The next location was Labia minora, which was found in 18 consensual victims (7.06%) and 57 non-consensual victims (15.92%) ($p = 0.001$). No injuries were found in 11 consensual victims (4.31%) and five non-consensual victims (1.40%) ($p = 0.026$).

Table 1. Characteristics of sexual assault victims (n = 613)

Characteristic	Number (%)		p-value
	Consensual group (n = 255)	Non-consensual group (n = 358)	
Age (years)			<0.000
13 to 15	154 (60.63)	128 (35.75)	
15 to 19	72 (28.35)	81 (22.63)	
20 to 29	16 (6.30)	98 (27.37)	
30 to 40	9 (3.54)	34 (9.50)	
40 to 49	3 (1.18)	10 (2.79)	
>50	0 (0.00)	7 (1.96)	
Mean ± SD	16.4±5.1	21.0±8.9	
Nationality			0.006
Thai	229 (89.80)	342 (95.53)	
Foreigner	26 (10.20)	16 (4.47)	
Marital status			<0.000
Single	251 (98.43)	322 (89.94)	
Married	3 (1.18)	26 (7.26)	
Divorced/widow/separated	1 (0.39)	10 (2.79)	
Occupation			<0.000
Student/undergraduated	134 (52.55)	142 (39.66)	
Freelance	29 (11.37)	90 (25.14)	
Private business employee	3 (1.18)	22 (6.15)	
Unemployed	11 (4.31)	36 (10.06)	
Prostitute	35 (13.73)	4 (1.12)	
Government officer	3 (1.18)	7 (1.96)	
Night entertainment	2 (0.78)	3 (0.84)	
Others	38 (14.90)	54 (15.08)	
Income (Bath)			0.002
None	191 (74.90)	209 (58.38)	
<5,000	9 (3.53)	16 (4.47)	
5001 to 10,000	29 (11.37)	61 (17.04)	
10,001 to 20,000	16 (6.27)	45 (12.57)	
20001 to 30000	4 (1.57)	12 (3.35)	
30,001 to 50,000	4 (1.57)	5 (1.40)	
>50,000	2 (0.78)	10 (2.79)	
Alcohol use relevant			0.024
Yes	24 (9.41)	56 (15.64)	
No	231 (90.59)	302 (84.36)	
Drug use relevant			0.058
Yes	42 (16.47)	40 (11.17)	
No	213 (83.53)	318 (88.83)	
Previous sexual intercourse			<0.000
Yes	131 (51.37)	240 (67.04)	
No	124 (48.63)	118 (32.96)	
Time to examination			<0.000
<72 hours	86 (33.73)	230 (64.25)	
72 hours to 7 days	30 (11.76)	36 (10.06)	
>7 days	139 (54.51)	92 (25.70)	

Table 2. Characteristics of assailants and assault

Characteristic	Number (%)		p-value
	Consensual group (n = 255)	Non-consensual group (n = 358)	
Age (years)			<0.000
<15	10 (5.26)	1 (0.37)	
15 to 19	91 (47.89)	70 (26.02)	
20 to 29	63 (33.16)	93 (34.57)	
30 to 39	13 (6.84)	64 (23.79)	
40 to 49	8 (4.21)	27 (10.04)	
50 to 59	5 (2.63)	11 (4.09)	
>60	0 (0.00)	3 (1.12)	
Nationality			0.079
Thai	203 (97.60)	304 (94.41)	
Foreigner	5 (2.40)	18 (5.59)	
Number of assailant			0.085
1	216 (84.71)	320 (89.39)	
>2	39 (15.29)	38 (10.61)	
Number of sexual intercourse			<0.000
1	51 (20.00)	203 (56.70)	
>2	204 (80.00)	155 (43.30)	
Condom use			<0.000
Yes	93 (36.47)	53 (14.80)	
No	162 (63.53)	305 (85.20)	
Relationship			
Known	205 (80.39)	259 (72.35)	
Unknown	50 (19.61)	99 (27.65)	
Type of relationship			<0.000
Lover	163 (63.92)	48 (13.41)	
Acquaintance/friends	10 (3.92)	110 (30.73)	
People they just know*	3 (1.18)	55 (15.36)	
Relatives/siblings	3 (1.18)	15 (4.19)	
Others	52 (20.39)	118 (32.96)	
Employer	5 (1.96)	7 (1.96)	
Father/stepfather	0 (0.00)	4 (1.12)	
Prostitute	18 (7.06)	0 (0.00)	

* People that victims know in less than 1 month

Table 4 shows the pattern of genital injury. Lacerated wounds were found the most, which was in 27 consensual victims (10.59%) and in 102 non-consensual victims (28.49%) ($p < 0.000$). Next were the abrasion wounds and contusion wounds, which were found in 15 consensual victims (5.88%) and 50 non-consensual victims (13.97%) ($p = 0.001$) and 8 consensual victims (3.14%) and 32 non-consensual victims (8.94%) ($p = 0.004$), respectively.

Discussion

In the present research, the biggest population in both consensual and non-consensual groups were the 13 to 15-year-old. Most of them were Thai, single, students or university students, and unemployed, similar to other researches in Thailand⁽³⁾. Most of them

Table 3. Locations of genital injury

Location of genital injury	Number (%)		p-value
	Consensual group (n = 255)	Non-consensual group (n = 358)	
No injury	11 (4.31)	5 (1.40)	0.026
External genitalia	7 (2.75)	11 (3.07)	0.813
Labia majora	4 (1.57)	6 (1.68)	0.918
Labia minora	18 (7.06)	57 (15.92)	0.001
Hymen	27 (10.59)	109 (30.45)	<0.000
Vagina	5 (1.96)	15 (4.19)	0.126

Table 4. Patterns of genital injury

Pattern of genital injury	Number (%)		p-value
	Consensual group (n = 255)	Non-consensual group (n = 358)	
Contusion	8 (3.14)	32 (8.94)	0.004
Abrasion	15 (5.88)	50 (13.97)	0.001
Laceration	27 (10.59)	102 (28.49)	<0.000

in both groups have had previous sexual relations, similar to the research in Australia⁽⁷⁾. Their presence at the hospital for medical check was similar to the research in Australia and England^(7,8). The non-consensual group would have medical check within three days after the sexual assault (64.25%), while most of the consensual group would have medical check after seven days (54.51%) ($p < 0.000$). In sexual assaults, condoms were used in the non-consensual group more than the consensual one (85.2% vs. 63.53%, $p < 0.000$), which is different from the research in Australia⁽⁷⁾ where the consensual group used more condoms. Moreover, the victims were assaulted by their acquaintances more than strangers. In non-consensual group, most of the assailants were victims' friends (30.73%), similar to the research in England⁽⁸⁾ and Nigeria⁽⁹⁾. The assailant usually did it alone like the researches in Thailand⁽³⁾.

For the locations of the injuries, the present research showed that the hymen was injured the most in both consensual and non-consensual group, which showed a statistical significance similar to the researches in Thailand⁽³⁾. In England and Australia^(7,8), injuries at external genitalia were found the most, and laceration wounds were found at hymen the most in teenagers. Next location was labia minora (7.06% and 15.92%, $p = 0.001$), which was found in both consensual and non-consensual groups. Labia majora was found the least in both groups and had no

statistical significance. However, from the present study, only a few wounds were found at the external genitalia, vagina, and labia majora, in both groups. Therefore, there was no statistical significance in this category. Aside from the result mentioned above, there were victims that did not have any wounds in their sexual organs as seen in the consensual group 4.31% and non-consensual group 1.40% ($p = 0.026$). This result showed statistical significance.

The wound occurring at the sexual organs can be categorized into three types, contusion wound, abrasion wound, and laceration wound. In the present research, the laceration wounds were found the most in both consensual and non-consensual groups with statistical significance (10.59% and 28.49%, $p = 0.000$), which was similar to the researches in England⁽⁸⁾ and Australia⁽⁷⁾. Next was the abrasion wound. Contusion wound was found the least, which was similar to report from England⁽⁸⁾.

The non-consensual group had more genital injury than the consensual group, which was similar to Australia⁽⁷⁾ and to United states of America⁽¹⁰⁾. Hymen, labia minora, abrasion, contusion, and laceration wound had statistical significance. Similar wounds were found in sexual organs of the consensual victims as in the non-consensual ones, with statistical significance.

For further studies, if more cases were included in the study, it may be possible to study the differences of wound locations in external genitalia, vagina, and labia majora, and categorize the wound locations in the sexual organs and types of wounds. It is suggested to conduct a prospective study to learn more about the differences between the consensual and non-consensual groups, which will be helpful for the victims who engage in the legal system.

Conclusion

Both groups were mostly teenage and mostly single. Most of the assailants were known by the victims. In the non-consensual group, laceration, abrasion, and contusion wound were found at hymen and labia minora more often than in the consensual group with statistical significance. The interesting point is that a similar number of wounds were found in sexual organs of the consensual victims and non-consensual victims. This may help diagnose the wounds of the assaulted victims with unclear profiles.

What is already known on this topic?

Sexual assaults are a major problem around the

world affecting the victims and their family physically, mentally, and socially. Regarding legal problems, there are consensual and non-consensual assaults. While having normal intercourse with sexual partners, women are protected from genital injury. In contrast with sexual assault, there is a lack of those natural protective responses. Therefore, sexual assault may lead to genital injury. Such injury may be different between consensual and non-consensual intercourse.

What this study adds?

In the non-consensual group, laceration, abrasion, and contusion wound were found at hymen and labia minora more often than the in consensual group. An interesting point is that similar type and quantity of wounds were found in sexual organs of the consensual and the non-consensual victims.

Acknowledgment

The authors would like to thank Alisara Sangviroon for support on statistical analysis.

Potential conflicts of interest

None.

References

1. Masters WH, Johnson VE. The human female: anatomy of sexual response. Minn Med 1960;43: 31-6.
2. Girardin BW, Faugno DK, Seneski PC, Slaughter L, Whelan M. Color atlas of sexual assault. St. Louis, MO: Mosby; 1997.
3. Suthaporn S, Teerapong S, Aojanepong T, Sangviroon A, Napakorn K, Bhamarapratana K. Characteristics and health consequences of adolescent sexual assault at Police General Hospital, Thailand. J Med Assoc Thai 2014;97: 1221-6.
4. Pacharabumrung P, Teerapong S, Suwannarurk K, Bhamarapratana K, Sangviroon A, Napakorn K. Physical health consequences of child sexual assault in Police General Hospital. J Med Assoc Thai 2014;97:1227-33.
5. Kaufman M. Care of the adolescent sexual assault victim. Pediatrics 2008;122:462-70.
6. Danielson CK, Holmes MM. Adolescent sexual assault: an update of the literature. Curr Opin Obstet Gynecol 2004;16:383-8.
7. Lincoln C, Perera R, Jacobs I, Ward A. Macroscopically detected female genital injury after consensual and non-consensual vaginal

- penetration: a prospective comparison study. J Forensic Leg Med 2013;20:884-901.
8. McLean I, Roberts SA, White C, Paul S. Female genital injuries resulting from consensual and non-consensual vaginal intercourse. Forensic Sci Int 2011;204:27-33.
 9. Ohayi RS, Ezugwu EC, Chigbu CO, Arinze-Onyia SU, Iyoke CA. Prevalence and pattern of rape among girls and women attending Enugu State University Teaching Hospital, southeast Nigeria. Int J Gynaecol Obstet 2015;130:10-3.
 10. Anderson JC, Sheridan DJ. Female genital injury following consensual and nonconsensual sex: state of the science. J Emerg Nurs 2012;38:518-22.

การบาดเจ็บต่ออวัยวะเพศในผู้หญิงที่ยินยอมมีเพศสัมพันธ์และผู้ถูกล่วงละเมิดทางเพศในโรงพยาบาลตำรวจ

ฉันทพัฒน์ คงธนจารุอนันต์, เสรี อธิพงษ์, อธิรัฐ จันทร์พานิชเจริญ

วัตถุประสงค์: เพื่อศึกษาความแตกต่างของตำแหน่งและลักษณะของบาดแผลบริเวณอวัยวะเพศในกลุ่มที่ยินยอมมีเพศสัมพันธ์ และกลุ่มผู้ถูกล่วงละเมิดทางเพศในโรงพยาบาลตำรวจ

วัตถุประสงค์และวิธีการ: เป็นการเก็บข้อมูลแบบย้อนหลังของเวชระเบียนในผู้ถูกล่วงละเมิดทางเพศทั้งหมดในโรงพยาบาลตำรวจ ระหว่างวันที่ 1 มกราคม พ.ศ. 2556 ถึง 31 ธันวาคม พ.ศ. 2556

ผลการศึกษา: หญิงที่อยู่ในกลุ่มการศึกษามีทั้งหมด 613 คน โดยเป็นกลุ่มที่ถูกล่วงละเมิดทางเพศ 358 คน และกลุ่มที่ยินยอมมีเพศสัมพันธ์ 255 คน อายุที่พบมากที่สุด คือ ช่วง 13-15 ปี และเป็นคนโสดเป็นส่วนใหญ่ ผู้กระทำในกลุ่มที่ยินยอมมีเพศสัมพันธ์ พบว่าเป็นคนรัก แต่ในกลุ่มที่ถูกล่วงละเมิดทางเพศ พบว่าเป็นเพื่อนเป็นส่วนใหญ่ กลุ่มที่ถูกล่วงละเมิดทางเพศ พบการบาดเจ็บต่ออวัยวะเพศมากกว่ากลุ่มที่ยินยอมมีเพศสัมพันธ์ โดยตำแหน่งที่พบการบาดเจ็บมากที่สุด คือ เชื้อพธุมจารี (30.45% และ 10.59%, $p < 0.000$) รองลงมา คือ แคมใน (15.92% และ 7.06%, $p = 0.001$) ช่องคลอด (4.19% และ 1.96%) อวัยวะเพศด้านนอก (3.07% และ 2.75%) และแคมนอก (1.68% และ 1.57%) กลุ่มที่ยินยอมมีเพศสัมพันธ์ตรวจไม่พบบาดแผล มีจำนวนมากกว่ากลุ่มที่ถูกล่วงละเมิดทางเพศ (4.31% และ 1.40%, $p = 0.026$) ลักษณะของบาดแผลที่พบมากที่สุดในทุกกลุ่ม คือ บาดแผลฉีกขาด (28.49% และ 10.59%, $p < 0.000$) ในกลุ่มที่ถูกล่วงละเมิดทางเพศและกลุ่มที่ยินยอมมีเพศสัมพันธ์ รองลงมา คือ บาดแผลถลอก (13.97% vs. 5.88%, $p = 0.001$) และบาดแผลฟกช้ำ (8.94% vs. 3.14%, $p = 0.004$) พบน้อยที่สุด

สรุป: ผู้ถูกกระทำส่วนมากอายุ 13-15 ปี โสด ผู้ถูกกระทำรู้จักผู้กระทำ กลุ่มที่ถูกล่วงละเมิดทางเพศพบการบาดเจ็บต่ออวัยวะเพศมากกว่ากลุ่มที่ยินยอมมีเพศสัมพันธ์ พบลักษณะบาดแผลฉีกขาด ถลอก และฟกช้ำ และที่บริเวณเชื้อพธุมจารีและแคมใน มากกว่ากลุ่มที่ยินยอมมีเพศสัมพันธ์อย่างมีนัยสำคัญทางสถิติ และอีกประเด็นที่น่าสนใจ คือ ตรวจไม่พบบาดแผลบริเวณอวัยวะเพศในกลุ่มที่ยินยอมมีเพศสัมพันธ์ ซึ่งอาจจะช่วยในการพิจารณาบาดแผลของผู้ที่มาตรวจเรื่องการล่วงละเมิดทางเพศในผู้ป่วยบางรายที่ไม่ชัดเจนเรื่องประวัติได้