

Hymen protection and the sexual practices, perceptions, and attitudes of female university students from Lebanon

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Abstract

Objective: To investigate associations between hymen protection and women's alternative sexual practices, perceptions, and attitudes.

Methods: A cross-sectional online survey was administered among university students (aged 18–30 years) in Lebanon between April 30 and August 31, 2012. The present analysis focused on female students who had engaged in oral/anal sex.

Results: Among 416 included women, 163 (39.3%) reported anal/oral sex to protect their hymen. Women ever concerned with hymen protection were less likely to be non-Lebanese and not religious/spiritual, but more likely to report unwanted sexual activities, a relationship in which they felt things were moving too fast physically, and to feel guilty about sexual feelings (all $P < 0.01$). They were two-to-three times more likely to agree that it is harder to refuse sex after the first time and that oral sex is not as big of a deal as sexual intercourse (both $P < 0.001$). Concerned women who later engaged in vaginal sex ($n = 75$) were less religious and more accepting of premarital sex than were those who continued to protect their hymen ($n = 88$; all $P < 0.005$).

Conclusion: Women concerned about hymen-breaking engage in alternative sexual practices, yet experience pressure, guilt, worry, and indecisiveness regarding their sex-related decisions. The navigation of sexual decisions is a more vulnerable process for these women because of prevailing patriarchal values and discriminating gender norms in Lebanon.

KEYWORDS

Hymen; Lebanon; Sexual experiences; Virginity; Youth

1 | INTRODUCTION

The Middle East is a diverse region in relation to health and development, judicial systems, types of state (secular vs religious), and levels of political and personal sexual freedoms.^{1,2} Despite this diversity, common challenges exist in relation to reproductive and sexual rights, especially with regard to women's sexuality and sexual expression.³ In most of the region's societies, the concept of female virginity has been highly valued and guarded both socially and legally over the centuries. Until their wedding night, also known as "the night of penetration"

("laylit al dukhla"), single women are expected to remain virgins. "Honor" crimes (or murdering a bride for not bleeding on her wedding night) go unprosecuted, supporting patriarchal values.⁴

The theologian concept of "virginity," which implies that single women are never touched by a man, is reduced to hymen intactness. The hymen signifies much more than the mere existence of a membrane and is strongly associated with purity and chastity.^{5–7} The significance of the hymen is further amplified and sustained by patriarchal values prominent in the region, reinforcing gender inequities in relation to sexual freedoms, sexual behaviors, and sexual rights.⁸



Virginity is one example of existing double standards that have allowed men to freely engage in premarital sexual activity while controlling women's bodily autonomy and sexuality through their virginal state.^{9,10}

Within such existing sociocultural restrictions, one could ask how women desirous of premarital sex express their sexuality while keeping their hymen intact. They could either completely abstain from sexual activity, choose to perform outercourse (non-penetrative),¹¹ or engage in alternative sexual activities such as oral or anal sex.¹² Women can also choose to engage in vaginal sexual activity and later resort to a hymen reconstruction procedure (hymenorrhaphy).^{5,13} In Lebanon—a small country in the Middle East renowned for its religious and ethnic diversity—there are increasing demands from young women for hymen reconstruction surgery before they marry^{13,14} to restore their purity, uphold their family honor, and enhance their marriageability.^{15,16}

After industrialization and the emergence of capitalist economies, Lebanon experienced a slow shift from the extended patriarchal family model to a nuclear family model, which caused debates around sexuality, civil marriage, cohabitation, and premarital sex, making these issues more tolerated.¹¹ Increased tolerance toward sexual behavior and premarital sex has been observed particularly among young people who have lived in Europe or North America for at least a year as opposed to those who have never left the country.^{17,18} Globalization, the emergence of the internet, and exposure to different cultures through multimedia and literature have also contributed to the shift in social values, with young people not only becoming tolerant, but also engaging in premarital sex at an earlier age.¹⁹ The increasing and high mean age at first marriage (32.8 and 28.8 years in men and women, respectively, in 2004²⁰) amplifies the biosocial gap and the chances of premarital sex in the country.

In this setting, the present paper aims to investigate two research questions. First, how do female university students who have ever engaged in oral/anal sex to protect their hymen vary in their sexual practices, perceptions, and attitudes from those who have never been concerned with hymen intactness? Second, how do the sexual practices, perceptions, and attitudes of women who were initially concerned about preserving the hymen but who later engaged in vaginal sex differ from those of women who remained concerned?

2 | MATERIALS AND METHODS

An observational cross-sectional study was conducted between April 30 and August 31, 2012, among undergraduate and graduate students attending the American University of Beirut, a large private university in Lebanon. All 7841 students registered for the spring term were invited via their institutional emails to take part in the study. The email, which briefly introduced the study and the investigators and explained the voluntary and anonymous nature of the study, included an opt-out link and a secured survey URL that, once clicked, led students to the online informed consent form. Students who were younger than 18 years or older than 30 years were excluded from

the study. Ethics approval for the online survey was obtained from the university's institutional review board and its Human Research Protection Program.

A self-administered online questionnaire was administered in English to all students who consented to participate in the study. The survey was conducted via LimeSurvey through the university's platform (<https://survey.aub.edu.lb/>). LimeSurvey ensured the participants' anonymity and privacy by making each submission completely untraceable.

Information about sociodemographic variables including age, nationality, years lived in Lebanon, educational level, and spirituality/religiosity was collected. Students were also asked about unconventional commitment (e.g. cohabitation or legally sanctioned temporary marriage). Students' sexual practices were also assessed, including both non-penetrative (e.g. ever kissed someone romantically) and penetrative (ever engaged in oral, anal, or vaginal sex) practices, as well as other sexual activities such as masturbation, watching pornography, or cybersex. Information related to risky sexual practices (including familiarity with first sexual partner, number of lifetime sexual partners, non-use of condoms) and nonconsensual sexual experiences (including level of consent at sexual debut and history of sexual abuse) was also obtained.

Other questions assessed: patterns of sexual communication with the partner, close friends, and parents/male or female guardians; perceptions on various sexual matters such as contraceptive use; level of worry about experiencing sexual violence, sexually transmitted infections (STIs), HIV/AIDS, or an unwanted pregnancy; and level of worry about engagement in more sexual activity than planned under the influence of alcohol or drugs. A set of questions also measured attitudes toward premarital sex, preference of age and timing of sexual debut, guilt about having sexual feelings, and other sexual matters.

For the present study, women who reported ever having had oral or anal sex were included in analyses. The dependent variable of interest (hymen protection) was constructed via the following two yes/no questions asked to these women: "Have you ever had oral sex to avoid hymen-breaking (losing virginity)?" and "have you ever had anal sex to avoid hymen-breaking (losing virginity)?" Women who answered "yes" to either of the two questions were defined as women who had ever been concerned about hymen protection (women who had engaged in penetrative sexual activities other than vaginal intercourse to preserve hymen intactness), whereas women who responded "no" to both questions were defined as women who had never been concerned about hymen protection.

The data were analyzed using Stata/IC version 10.0 (StataCorp, College Station, TX, USA). Bivariate analysis was conducted using the Pearson χ^2 test and the Fisher exact test for two categorical variables. The independent t test was used to test mean differences for continuous variables. Unadjusted and adjusted logistic regression models were run; the adjusted models included sociodemographic variables that were significantly associated with hymen protection at the bivariate level. $P < 0.05$ was considered statistically significant.



3 | RESULTS

Of the 7841 students, 2180 aged 18–30 years voluntarily consented to participate (27.8% response rate) after reading the online informed consent form. The present analysis included 416 female students who had ever had anal or oral sex. Among these women, 163 (39.2%) reported having had anal or oral sex specifically to protect their hymen, of whom 75 (46.0%) later engaged in vaginal sex.

No significant age difference was observed between female students who had ever been concerned about hymen protection and those who had never been concerned (Table 1). Compared with women who had never been concerned about hymen intactness, women who had ever been concerned were less likely to be non-Lebanese than Lebanese, three times as likely to have previously attended a private high school (religious or nonreligious) versus a public one, and more likely to consider themselves as financially independent (Table 1). They were also less likely to describe themselves as not religious/spiritual than very religious/spiritual to religious/spiritual (Table 1).

The two groups were equally likely to have engaged in non-penetrative sexual practices, and to report same-sex sexual attraction and sexual activity (Table 2). Moreover, the two groups were equally likely to not engage in several risky sexual practices and to report any lifetime history of sexual abuse (Table 2). Women who had ever had oral/anal sex to protect their hymen were approximately four times more likely to have engaged in anal sex than were those who had never been concerned about hymen protection, but both groups were equally likely to have had oral sex (Table 2).

Female students who expressed concern over hymen protection were twice more likely than those who had never been concerned to report ever having engaged in a sexual act they did not really want to do, and to have ever been in a relationship that was moving too fast physically (Table 2). They were also twice more likely to report having been unwilling at their sexual debut; however, the difference was not statistically significant after controlling for sociodemographic factors (Table 2).

Communication patterns about sexual matters with the current or ex-partner or with the father/male guardian did not differ between the two groups (Table S1). However, women who engaged in oral and/or anal sex to avoid hymen-breaking were less likely to talk about sex with their close friends (adjusted odds ratio [AOR] 0.49, 95% confidence interval [CI] 0.28–0.85; $P=0.011$) or with their mother/female guardian (AOR 0.53, 95% CI 0.32–0.87; $P=0.012$).

Women who had ever engaged in oral and/or anal sex to avoid hymen-breaking were 54% less likely to perceive condoms as effective at preventing STIs other than HIV/AIDS (AOR 0.46, 95% CI 0.21–0.99; $P=0.046$), and approximately four times more likely to report not knowing whether one could contract an STI via kissing (AOR 3.80, 95% CI 1.13–12.81; $P=0.031$) (Table S2). The two groups were equally likely to be worried about experiencing sexual violence, STIs, HIV/AIDS, or an unplanned/unwanted pregnancy, but women who had ever been concerned over hymen intactness were three times more likely to be very worried about doing more sexually than

planned under the influence of alcohol or drugs than were those who had never been concerned (AOR 3.17, 95% CI 1.37–7.37; $P=0.007$) (Table S2).

Compared with women not concerned with hymen intactness, those who had engaged in oral/anal sex to preserve their hymen were four times as likely to be undecided whether “it is a big deal to have sex without a condom once in a while” (AOR 3.91, 95% CI 1.47–10.39; $P=0.006$), three times as likely to think that “once you have had sex it is harder to say no the next time” (AOR 3.01, 95% CI 1.77–5.11; $P<0.001$), and twice more likely to agree that “there is pressure to have sex by a certain age” (AOR 1.92, 95% CI 1.19–3.08; $P=0.007$) (Table S3). Concerned female students were also three times more likely to think that “oral sex is not as big of a deal as sexual intercourse” (AOR 2.87, 95% CI 1.78–4.62; $P<0.001$), and seven times more likely to be undecided about whether “it is important that a woman can talk with her sexual partner about her sexual past” (AOR 7.16, 95% CI 1.87–27.38; $P=0.004$) (Table S3).

Students who had engaged in oral/anal sex to preserve their hymen were twice as likely as those not concerned to think that “if a man gets sexually excited, his partner should satisfy his sexual needs” (AOR 1.88, 95% CI 1.13–3.13; $P=0.015$) and that “if a woman gets sexually excited, her partner should satisfy her sexual needs” (AOR 2.30, 95% CI 1.36–3.90; $P=0.002$) (Table S4). Moreover, they were less likely to agree that it is “okay for a man to have sex before marriage” (AOR 0.46, 95% CI 0.23–0.93; $P=0.032$) or “okay for a woman to have sex before marriage” (AOR 0.47, 95% CI 0.26–0.86; $P=0.014$) (Table S4). These women were also twice more likely to sometimes feel guilty about having sexual feelings (AOR 1.95, 95% CI 1.14–3.33; $P=0.015$) (Table S4).

For the second research question, female students who had initially engaged in oral/anal sex to avoid hymen-breaking but later had vaginal sex ($n=75$) were compared with those who preserved their hymen ($n=88$). The latter were less likely to be living independently (odds ratio [OR] 0.37, 95% CI 0.15–0.89; $P=0.027$) and to report not being religious/spiritual at all (OR 0.29, 95% CI 0.12–0.68; $P=0.004$). After adjusting for religiosity and living arrangement that were significant at the bivariate level, female students who preserved their hymen were also less likely to engage in anal sex than were those who later had vaginal sex (OR 0.43, 95% CI 0.22–0.84; $P=0.013$), but there was no difference in mean age at first anal sex between the two groups (19.3 ± 2.3 among women who remained concerned vs 18.6 ± 2.6 years among those who later had vaginal sex; $P=0.446$). Female students who remained concerned about hymen protection reported a later age for their first experience of oral sex than did those who did not remain concerned (19.0 ± 2.2 vs 17.5 ± 2.14 years; $P<0.001$). In the adjusted model, women who remained concerned about hymen protection reported a preference for their first sexual intercourse to occur after marriage (OR 3.03, 95% CI 1.19–7.68; $P=0.020$), were less likely to agree that it is okay for women (OR 0.26, 95% CI 0.11–0.63; $P=0.003$) or men (OR 0.22, 95% CI 0.07–0.65; $P=0.006$) to have sex before marriage, and were three times more likely to agree that “once you have had sex it is harder to say no the next time” (OR 2.96, 95% CI 1.17–7.51; $P=0.022$).

TABLE 1 Sociodemographic distribution of female participants who had ever been concerned about hymen protection and those who had never been concerned (n=416).

Demographic characteristic	Never concerned (n=253) ^a	Ever concerned (n=163) ^a	Unadjusted odds ratio (95% confidence interval) ^b	P value
Age, y	21.5 ± 2.4	21.4 ± 2.4	—	0.6045
Nationality				
Lebanese	202/253 (79.8)	139/163 (85.3)	1	—
Foreign Arab	17/253 (6.7)	20/163 (12.3)	1.71 (0.86–3.38)	0.123
Foreign non-Arab	34/253 (13.4)	4/163 (2.5)	0.17 (0.06–0.49)	0.001
Type of high school				
Public	29/249 (11.6)	7/163 (4.3)	1	—
Private, religious	70/249 (28.1)	58/163 (35.6)	3.43 (1.40–8.41)	0.007
Private, nonreligious	150/249 (60.2)	98/163 (60.1)	2.71 (1.14–6.42)	0.024
Educational level				
Undergraduate	172/252 (68.3)	110/163 (67.5)	1	—
Graduate/postgraduate	80/252 (31.7)	53/163 (32.5)	1.04 (0.68–1.58)	0.870
Faculty				
Not health-related	198/253 (78.3)	123/163 (75.5)	1	—
Health-related	55/253 (21.7)	40/163 (24.5)	1.17 (0.74–1.86)	0.507
Current relationship status				
Single	96/253 (37.9)	60/163 (36.8)	1	—
In a relationship	157/253 (62.1)	103/163 (63.2)	1.05 (0.70–1.58)	0.815
Living situation				
Not independent	159/253 (62.8)	105/162 (64.8)	1	—
Semi-independent	44/253 (17.4)	30/162 (18.5)	1.03 (0.61–1.75)	0.905
Independent	50/253 (19.8)	27/162 (16.7)	0.82 (0.48–1.39)	0.456
Years lived in Lebanon				
Not all my life	138/253 (54.5)	83/163 (50.9)	1	—
All my life	115/253 (45.5)	80/163 (49.1)	1.16 (0.78–1.72)	0.470
Lived abroad after age 12 y				
No	157/253 (62.1)	110/163 (67.5)	1	—
Yes	96/253 (37.9)	53/163 (32.5)	0.79 (0.52–1.19)	0.260
Financials				
Dependent	197/253 (77.9)	112/163 (68.7)	1	—
Independent	56/253 (22.1)	51/163 (31.3)	1.60 (1.03–2.50)	0.038
Spirituality or religiosity				
Very religious/spiritual to religious/spiritual	61/253 (24.1)	51/163 (31.3)	1	—
Somewhat religious/spiritual	80/253 (31.6)	70/163 (42.9)	1.05 (0.64–1.71)	0.856
Not at all religious/spiritual	112/253 (44.3)	42/163 (25.8)	0.45 (0.27–0.75)	0.002
Tuition source				
Family/self	204/253 (80.6)	137/163 (84.0)	1	—
Scholarship/merit	39/253 (15.4)	18/163 (11.0)	0.69 (0.38–1.25)	0.220
Loans/donations	10/253 (4.0)	8/163 (4.9)	1.19 (0.46–3.09)	0.719
City of residence				
Capital (Beirut)	162/253 (64.0)	98/163 (60.1)	1	—
Other	91/253 (36.0)	65/163 (39.9)	1.18 (0.79–1.77)	0.422

(Continues)

TABLE 1 (Continued)

Demographic characteristic	Never concerned (n=253) ^a	Ever concerned (n=163) ^a	Unadjusted odds ratio (95% confidence interval) ^b	P value
Do you know anyone in Lebanon who has ever been in an unconventional commitment				
No	120/253 (47.4)	86/163 (52.8)	1	—
Yes	106/253 (41.9)	71/163 (43.6)	0.93 (0.62–1.41)	0.746
I don't know what that is	27/253 (10.7)	6/163 (3.7)	0.31 (0.12–0.78)	0.013
Have you ever been in an unconventional commitment				
No	223/250 (89.2)	148/163 (90.8)	1	—
Yes, cohabitation	21/250 (8.4)	9/163 (5.5)	0.65 (0.29–1.45)	0.289
Yes, temporary marriage	6/250 (2.4)	6/163 (3.7)	1.51 (0.48–4.76)	0.485

^aValues are given as mean ± SD or number/total number (percentage).

^bReference: never concerned.

4 | DISCUSSION

Refusal of hymen-breaking involves an intricate decision-making process. Of 416 sexually active women who engaged in oral/anal sex, 39% reported having done so to avoid hymen-breaking indicating a continuing patriarchal stronghold of hymen preservation. Normative and pervasive cultural influences that affect women's bodily autonomy, life decisions, and sexual values, behaviors, and perceptions are created through tradition, community values, laws, and religion. Women who reported being not spiritual/religious were less likely to have ever engaged in anal/oral sex to preserve their hymen than were those who were very religious or spiritual.

Although most of the sample engaged in first anal, oral, and vaginal sex with familiar partners, and valued the intimacy and longevity of a trusting relationship as a prerequisite to engaging in sex, it was apparent that those who had ever been concerned with hymen protection experienced more pressure, guilt, worry, and indecisiveness regarding their sex-related decisions. The present results show that, in Lebanon, the navigation of sexual decisions is a solitary and thus more vulnerable process for women who are concerned about hymen-breaking: compared with those who had never been concerned, they were 50% less likely to talk about sex with their close friends or mother/female guardian, and seven times more likely to be undecided about whether it was important that they can discuss their sexual past with partners. They also felt rushed in the sexual segments of their relationships, had sex before they were ready to, felt it is hard to say no to sex the next time, and were worried about being taken advantage of when using drugs or alcohol. Not having many people to talk to and having to sexually engage more than desired, it is no wonder that they were twice more likely to sometimes feel guilty about having sexual feelings.

The vulnerability of women concerned with hymen protection is heightened by indecisiveness regarding sexual health, not knowing whether it is possible to contract an STI through kissing, and indecisiveness about whether it is a big deal to have sex without a condom once in a while. Their indecisiveness is a symptom of the clash between imposed values and personal values regarding premarital

sexual exploration. This is clearly evident in the practice of anal sex, for which women who had never been concerned with hymen protection and women who remained concerned with hymen protection (that is, those who had never had vaginal sex) were both less likely to engage in anal sex, compared with women who were initially concerned about hymen protection but later had vaginal sex. Amid gender inequality and male dominance, it is much harder for women to negotiate the sex they want as well as the sexual demands and expectations of their partners, and to fight to keep their relationships, when they themselves are undecided because of the social restrictions and expectations associated with family values and traditional norms.

Women in the Arab region tend to grow up with familial, religious, and traditional values of female chastity and with horror stories of honor crimes, family disownment, or family shame. Hymen intactness is treated as a precursor to marriageability, chastity, and social respectability. It is not surprising then that women who had ever engaged in hymen protection were three times more likely than those never concerned to perceive oral sex as not being as big of a deal as sexual intercourse. This is because penetrative vaginal sex and hymen intactness are of major concern to the society that these unmarried women are a part of. Nonetheless, all women in the present sample had a good knowledge of protecting themselves from STIs and unwanted pregnancies (although being worried about these possibilities), and were finding ways of satisfying their sexual desires and needs through intimate, romantic, pleasurable, and explorative relationships and with themselves (e.g. masturbation or watching pornography). What is also interesting is that women who engaged in oral/anal sex to protect their hymen were two-times more likely than were those who did not to affirm their right to sexual pleasure—a concept often disregarded because patriarchy prioritizes the pleasure of men.

Despite the diversity of the students in the present sample, the findings might not be generalizable to the entire youth population of Lebanon. Moreover, we recognize that although the students attended an English-speaking university, some might have felt more comfortable with an Arabic survey. As is inherent to any cross-sectional survey, temporality cannot be established between

TABLE 2 Sexual experiences of female participants who had ever been concerned about hymen protection versus those who had never been concerned (n=416).

Sexual experiences	Never concerned (n=253) ^a	Ever concerned (n=163) ^a	Unadjusted		Adjusted	
			OR (95% CI) ^b	P value	OR (95% CI) ^{b,c}	P value
Sexual practices						
Ever been with someone in an intimate way						
No	4/253 (1.6)	3/163 (1.8)	1	—	1	—
Yes	249/253 (98.4)	160/163 (98.2)	0.86 (0.19–3.88)	0.841	1.31 (0.28–6.21)	0.732
Ever kissed someone romantically						
No	0/253	0/163	1	—	1	—
Yes	253/253 (100.0)	163/163 (100.0)	—	—	—	—
Ever consensually touched/been touched above your clothes at the private parts						
No	2/252 (0.8)	1/163 (0.6)	1	—	1	—
Yes	250/252 (99.2)	162/163 (99.4)	1.30 (0.12–14.41)	0.833	1.63 (0.14–18.50)	0.694
Ever engaged in sexual activities with yourself such as: masturbation, watching pornography, intercourse, or cybersex						
No	36/246 (14.6)	25/163 (15.3)	1	—	1	—
Yes	210/246 (85.4)	138/163 (84.7)	0.94 (0.54–1.65)	0.845	1.10 (0.61–1.97)	0.761
Ever engaged in sexual activities with a partner such as: masturbation, watching pornography, intercourse, or cybersex						
No	74/252 (29.4)	37/162 (22.8)	1	—	1	—
Yes	178/252 (70.6)	125/162 (77.2)	1.40 (0.89–2.22)	0.144	1.37 (0.85–2.22)	0.197
Ever been sexually attracted to someone of the same sex						
No	163/252 (64.7)	113/163 (69.3)	1	—	1	—
Yes	57/252 (22.6)	32/163 (19.6)	0.81 (0.49–1.33)	0.404	1.06 (0.61–1.83)	0.845
Maybe	32/252 (12.7)	18/163 (11.0)	0.81 (0.43–1.52)	0.512	0.90 (0.45–1.77)	0.750
Ever had sexual activity with someone of the same sex						
No	206/251 (82.1)	140/161 (87.0)	1	—	1	—
Yes	45/251 (17.9)	21/161 (13.0)	0.69 (0.39–1.20)	0.189	0.84 (0.46–1.56)	0.588
Ever had oral sex						
No	1/253 (0.4)	3/162 (1.9)	1	—	1	—
Yes	252/253 (99.6)	159/162 (98.1)	0.21 (0.02–2.04)	0.179	0.25 (0.02–2.53)	0.238
Ever had anal sex						
No	201/249 (80.7)	89/160 (55.6)	1	—	1	—
Yes	48/249 (19.3)	71/160 (44.4)	3.34 (2.14–5.20)	<0.001	3.88 (2.38–6.32)	<0.001

(Continues)

TABLE 2 (Continued)

Sexual experiences	Never concerned (n=253) ^a	Ever concerned (n=163) ^a	Unadjusted		Adjusted	
			OR (95% CI) ^b	P value	OR (95% CI) ^{b,c}	P value
Ever had vaginal sex						
No	71/247 (28.7)	87/162 (53.7)	1	–	1	–
Yes	176/247 (71.3)	75/162 (46.3)	0.35 (0.23–0.53)	<0.001	0.46 (0.30–0.72)	0.001
Nonconsensual sexual experiences						
Ever done anything sexual you did not really want to do						
No	157/248 (63.3)	83/162 (51.2)	1	–	1	–
Yes	79/248 (31.9)	73/162 (45.1)	1.75 (1.15–2.65)	0.008	2.09 (1.33–3.29)	0.001
Rather not say	12/248 (4.8)	6/162 (3.7)	0.95 (0.34–2.61)	0.914	0.89 (0.30–2.63)	0.830
Ever been in a relationship when you felt things were moving too fast physically						
No	148/251 (59.09)	57/159 (35.8)	1	–	1	–
Yes	103/251 (41.0)	102/159 (64.2)	2.57 (1.71–3.88)	<0.001	2.45 (1.58–3.80)	<0.001
Ever been sexually abused						
No	173/248 (69.8)	101/158 (63.9)	1	–	1	–
Yes	68/248 (27.4)	50/158 (31.6)	1.26 (0.81–1.96)	0.304	1.41 (0.87–2.28)	0.165
Rather not say	7/248 (2.8)	7/158 (4.4)	1.71 (0.58–5.02)	0.327	1.50 (0.49–4.62)	0.480
Level of consent at sexual debut						
Willing	154/182 (84.6)	72/103 (69.9)	1	–	1	–
Not willing	28/182 (15.4)	31/103 (30.1)	2.37 (1.32–4.24)	0.004	1.84 (0.98–3.48)	0.059
Risky sexual practices						
Drinking or using drugs during first-time sexual intercourse (oral, vaginal, or anal sex)						
No	228/251 (90.8)	157/163 (96.3)	1	–	1	–
Yes	23/251 (9.2)	6/163 (3.7)	0.38 (0.15–0.95)	0.039	0.72 (0.27–1.96)	0.524
Lifetime no. of sexual partners you had sexual intercourse with (vaginal or anal sex)						
1–2	96/178 (53.9)	71/105 (67.6)	1	–	1	–
3–5	44/178 (24.7)	26/105 (24.8)	0.80 (0.45–1.42)	0.443	1.10 (0.58–2.08)	0.782
6–10	19/178 (10.7)	5/105 (4.8)	0.36 (0.13–1.00)	0.050	0.38 (0.12–1.23)	0.107
≥11	19/178 (10.7)	3/105 (2.9)	0.21 (0.06–0.75)	0.016	0.40 (0.10–1.57)	0.190
Ever had sexual intercourse (vaginal or anal sex) without a condom						
No	24/182 (13.2)	19/105 (18.1)	1	–	1	–
Yes	158/182 (86.8)	86/105 (81.9)	0.69 (0.36–1.33)	0.264	0.75 (0.37–1.53)	0.429
First oral sex took place with						
Familiar partner ^d	226/247 (91.5)	147/156 (94.2)	1	–	1	–
Unfamiliar partner ^e	21/247 (8.5)	9/156 (5.8)	0.66 (0.29–1.48)	0.312	0.74 (0.31–1.73)	0.481

(Continues)



TABLE 2 (Continued)

Sexual experiences	Never concerned (n=253) ^a	Ever concerned (n=163) ^a	Unadjusted		Adjusted	
			OR (95% CI) ^b	P value	OR (95% CI) ^{b,c}	P value
First anal sex took place with						
Familiar partner ^d	46/47 (97.9)	67/72 (93.1)	1	–	1	–
Unfamiliar partner ^e	1/47 (2.1)	5/72 (6.9)	3.43 (0.39–30.35)	0.267	3.15 (0.32–31.33)	0.328
First vaginal sex took place with						
Familiar partner ^d	163/172 (94.8)	69/75 (92.0)	1	–	1	–
Unfamiliar partner ^e	9/172 (5.2)	6/75 (8.0)	1.57 (0.54–4.59)	0.406	1.80 (0.56–5.80)	0.322
Ever experienced an unplanned or unwanted pregnancy						
No	235/252 (93.3)	155/162 (95.7)	1	–	1	–
Yes	17/252 (6.7)	7/162 (4.3)	0.62 (0.25–1.54)	0.307	0.66 (0.26–1.73)	0.403

Abbreviations: OR, odds ratio; CI, confidence interval.

^aValues are given as number/total number (percentage).

^bReference: never concerned.

^cAdjusted for nationality, unconventional commitment, type of school, financial status, and spirituality/religiosity.

^dSerious partner (boyfriend/girlfriend/fiancé), friend, or marital spouse.

^eRandom partner or sex worker.

the variable of interest (hymen protection) and the outcome (alternative sexual practices, perceptions, and attitudes). Future surveys could delve further into the socioeconomic influences on women's decision-making processes regarding hymen protection, particularly among women who have changed their decision regarding hymen intactness. Qualitative studies would give more meaning to the present data and portray how women reclaim agency over their bodies in light of social stressors.

The present findings highlight the need to apply comprehensive sexuality education and build programs and interventions that work on breaking existing stigma around female sexuality, so that young women can be empowered to make informed decisions around their sexual health, feel confident to negotiate the sexual experience they want without fearing the ill consequences (e.g. STIs and unwanted pregnancies), and be enabled to discuss sexual matters of interest with their closest friends, family, and partners. Further research must understand that female sexual exploration and negotiation in Lebanon is a marker of practicing agency and autonomy in light of the security risks of social restrictions.

AUTHOR CONTRIBUTIONS

FEK contributed to the conception and design of the work. He was involved in the survey design, manuscript writing, and final review of the manuscript. NES was involved in the data analysis and the drafting of the manuscript. RY was involved in the data collection, and the writing and final review of the manuscript. LG is the principal investigator of the study, and was responsible for the design and implementation of the study; she was also involved in the conceptualization of the manuscript, the data analysis, the writing of the manuscript, and the proofreading of the final version.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest.

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SUPPORTING INFORMATION

Additional Supporting Information may be found online in the supporting information tab for this article.

Table S1. Sexual communication patterns among female participants who had ever been concerned about hymen protection versus those who had never been concerned.

Table S2. Sexual perceptions of female participants who had ever been concerned about hymen protection versus those who had never been concerned.

Table S3. Agreement level regarding 14 statements assessing sexual perceptions of female participants who had ever been concerned about hymen protection versus those who had never been concerned.

Table S4. Sexual attitudes of female participants who had ever been concerned about hymen protection versus those who had never been concerned.