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Research Article

Subjectivity About Sexual Ethics Among Korean Undergraduate Students Using Q Methodology



Youngrye Park, PhD,¹ Eun Ja Yeun, PhD,² Yoon Young Hwang, PhD^{3,*}

¹ Department of Nursing, Kunsan National University, Gunsan, South Korea

² Department of Nursing, Konkuk University, Chungju, South Korea

³ Seoul Women's College of Nursing, Seoul, South Korea

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SUMMARY

Purpose: Most undergraduate students are in the phase of gaining mental and physical autonomy from their parents as they expand their worlds. The ways that sexual ethics are established during this time may have an important influence on healthy lifestyles and the maintenance of social order. This study aims to determine a typology of undergraduate students' sexual ethics and the characteristics that compose the types.

Methods: Q methodology, which analyzes the subjectivity of each type of attitude, was used. The 44 selected Q statements from 43 participants were classified into the shape of a normal distribution using a 9-point scale. The collected data were analyzed using the PC-QUANL program.

Results: The results revealed three discrete groups of students with respect to sexual ethics: traditional absolute purity type, open-minded compromise type, and rational responsibility type.

Conclusions: The results of this study indicate that different approaches to educational programs on sexual ethics are recommended for undergraduate students based on the three types studied.

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Introduction

Sexuality transcends sexual activity; it is a comprehensive concept that includes attitudes, values, activities, and sense of sexual identity [1]. At present, Korea has an ambivalent standard of sexuality attributed to the mix between traditional Korean culture, which emphasized virginity and sexual expression within marriage, and Western romantic love ideology and sexual freedom. The Korean-type sexual morality that has emerged has brought major changes to the ethics and lifestyle of Korean society and active academic discussions on sexuality. However, the inflow of Western ways of thinking, commodification of sex, and absence of systematic sex education have brought increasing confusion to ethical values regarding sex, consequently bringing rise to many problems, such as sexual harassment and violence, and abortion.

Korea has many issues that relate to sexuality. The number of victims of sexual violence in Korea is increasing [2]. In 2011, the

number of sexual violence consultations reported was 129,938, which increased to 145,446 in 2013 [2]. Further, the number of unmarried mothers is increasing to a serious level of concern. Korea is a nation with a low fertility rate and an aging population, and consequently, a high level of artificial abortion and high numbers of international adoptions are truly national losses [3]. According to "Status and needs of single mothers report 2005" by the Ministry of Gender Equality and Family [4], unmarried mothers aged 20–29 years accounted for over 50.0% of all unmarried mothers. Moreover, the primary explanation for the high percentage of unmarried mothers was unplanned pregnancy owing to lack of or poor quality contraception.

Biological sexuality is based on the primary sex characteristics present at birth, but sexual identity is constructed through socialization that usually culminates at the end of puberty. Sexual identity is established through the combined influences of the maturity of biological sexuality and the individual's psychological integration with his or her biological development. It is completed primarily when identity and role by sex has occurred and then demonstrated through sexual role behavior, as well as the establishment of sexual ethics [5]. This process is commonly believed to occur during the end of adolescence and early years of adulthood.

* Correspondence to: Yoon Young Hwang, PhD, Seoul Women's College of Nursing, 38 Ganhoda-ro, Seodaemun-gu, Seoul 03617, South Korea.

E-mail address: hyy2115@hanmail.net

Undergraduate students are generally at this developmental point. They are in the process of gaining mental and physical autonomy from their parents and expanding their worlds [6]. Therefore, it is during this period that they establish their attitudes toward sexuality and start their sexual activities through exposure to diverse information on sexuality and sexual activities [7]. The ways that sexual ethics are established during this time may have an important influence on healthy lifestyles and the maintenance of social order.

Sexuality affects not only an individual's personality and emotions; it is the foundation of healthy social interaction. Thus, philosophical reflection on sexual values is important, based on which a firm foundation of sexual ethics that recognizes ideal sexual conditions and morally allowable sexual conditions could be established. Ethical values include the meanings and values given to sexuality by individuals, and these ethics vary according to individuals' experiences, cultural backgrounds, and academic circumstances. In addition, an individual's social context influences her or his ethical thinking and attitudes through continuous negotiations with herself or himself [8,9]. The establishment of ethical values is necessary to an individual's ability to make ethical decisions. Therefore, sexual values and ethics that will properly guide an individual's sexual consciousness and activities need to be established.

The vast majority of the literature on sexual ethics is composed of quantitative studies that focus on knowledge, attitudes, perceptions, sexual behaviors, and pregnancy [6,7,10–15]. Moreover, sexual ethics education and related programs have mainly been targeted at teenagers or college students as a whole, neglecting their individualities [16]. However, individuals' subjectivities in terms of sexual ethics play a critical role in understanding the relevant issues beyond words. Therefore, researchers should analyze each subjective perspective. Subjectivity is revealed by a systematic categorization of people's thoughts, feelings, values, and experiences related to the current research issue [17,18]. Therefore, the present study sought to identify college students' subjectivities with regard to sexual ethics by the Q methodology, which provides a systematic study of subjectivity [17].

This study aims to determine a typology of undergraduate students' sexual ethics and the characteristics that compose the types. By confirming the structure of undergraduates' subjective types of sexual ethics, the study aims to address the establishment of values for sexual ethics. A typology of sexual ethics is expected to help in providing customized sex education targeted at each type, enhance the content of counseling programs, and contribute to a resolution of the ambiguity of Korea's sexual culture.

Methods

Research design

This study was conducted via a Q methodological approach to explore and describe subjectivity regarding sexual ethics among Korean undergraduate students.

Q methodology

Q methodology, introduced by William Stephenson in 1935, combines the strengths of qualitative and quantitative research as a research method in encouraging participating individuals to express their subjective perspectives on a particular issue [19].

The five stages of the Q methodology in the present study are as follows: First, through literary reviews, journal collections, and in depth interviews, various ideas, beliefs and opinions are assembled to form "concourses". Second, a set of statements that best

represent the concourses is developed (Q sample). Third, the participants (P sample) select and sort these statements into forced-choice structures (Q sorting). All statements must be ranked, where each position can only be used once. Fourth, the collected data are analyzed by creating a correlation matrix for factor analysis. Factor scores are calculated for the Q sorting of each participant, and a total score is computed by examining the validity of the statements. Based on these results, the subjectivity types of the research participants are identified. Finally, each subjectivity type is interpreted [20].

Procedure and data collection

Concourses (Q population) and Q sample

In this study, the Q population is expressed by the concourse that is the sum of all statements or opinions uttered by the undergraduate students with regard to the sexuality issue being investigated. It should be composed of all of the statements that each participant expressed subjectively about the themes, objects, and concepts in the study, including subjective thoughts [21]. This study conducted a literature review, an open-ended questionnaire survey to extract statements on sexual ethics, and in depth interviews with eight students from various classes with specific gender and age characteristics. Before each interview, each interviewee was informed about the purposes and procedures of the study, and each interviewee provided informed consent. The interviews took an average of 1–2 hours, including the time spent obtaining participants' statements regarding open questions such as "What pops into your head when sexuality is mentioned?" and "Please tell me your honest opinion about sexuality ethics."

This procedure generated statements that expressed recognition of sexual ethics. All of these statements were extracted and arranged into 180 Q populations created to avoid overlapped questions. Then, the Q populations were categorized through repeated readings, from which statements believed to represent the best category for each subject emerged and were selected [21]. Prior to this survey, 44 statement samples were determined using two preliminary surveys and discussions with experts on Q methodology.

P sample

As the variable in Q methodology is the "person" and not a characteristic of the person, which is the case in individual-level quantitative research, Q methodology can be performed based on the small sample theory: if the P sample increases, a number of people will be concentrated into one factor, which would obscure that characteristic [21]. The present study had a P sample of 43 undergraduate students from three universities in Jeonllabuk-do province.

Q sorting

All of the participants were asked to rank the order of the Q samples using a grid termed the Q sort table by means of a paper-and-pencil survey. The Q sorting yielded a systematic forced distribution of 44 Q statements on a scale of 1–9 (Figure 1). After each Q sort, the participants were interviewed on the items they had placed in the extreme columns [*most strongly disagree* (ranked –4) and *most strongly agree* (ranked +4)]. The resultant Q sort was a matrix representing each participant's operant subjectivity on the issue under consideration.

Validity and reliability

Validity of a Q study includes content, face, and Q sorting validity. The reliability of Q sorting was verified using a test–retest

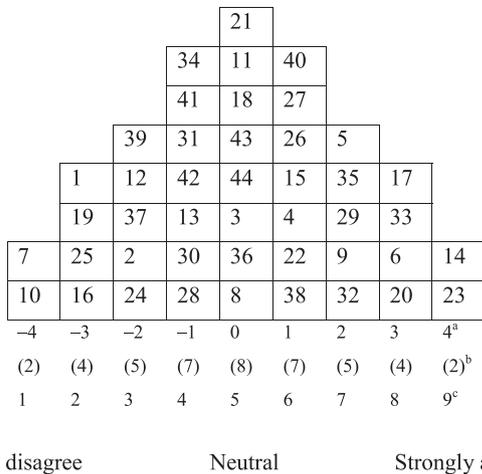


Figure 1. Q sorting distribution. Note. ^aRaw scores; ^bNumber of cards; ^cTransformed scores.

procedure. Repeated Q sorting is typically conducted at 1-week and 2-week intervals [22]. To assess the content validity of statements, the literature on sexual ethics was reviewed. With respect to face validity, statements were assessed by a team of four experts (3 professors of nursing and 1 methodologist). The Q sorting validity and reliability as well as the final panel of 44 Q samples were tested by five volunteer students and then retested 2 weeks later.

Data analysis

Principal component factor analysis utilized PC-QUANL (Seoul, Korea). The analysis yielded the eigenvalues of the Q factors. In deciding on the optimal factors, those deemed to be the most appropriate were selected after the input of various factors with eigenvalues of at least 1.0.

Ethical considerations

The study was approved by the institutional review board at Kunsan National University and was conducted in accordance with the principles of the Declaration of Helsinki. All of the data were treated confidentially and anonymously. All of the participants were fully informed of the study and that the data would never be used for any purpose other than this research. A signed informed consent was obtained from each participant at the time they agreed to participate in this study.

Results

The analysis found three types of subjectivity of undergraduate student’s sexual ethics. In 43 of the participants of the P sample, there were three types: 15 participants were grouped into Type I, 7 participants were grouped into Type II, and 21 participants were grouped into Type III (Table 1). The person with high factor weightings in each of the three types was used as a prototype, or ideal, representing the type to which he or she belonged. The three factors explained 60.4% of the variances: factor I (46.6%), factor II (8.0%), and factor III (5.8%), respectively. In addition, medium correlations were found among the three factors (Table 2). The characteristics of sexual ethics perspectives were analyzed and interpreted based on the array type, participant’s extreme comments, and sociodemographic information.

Type I: Traditional absolute purity

There were 12 females and 3 males in Type I. Their average age was 20.0 years old, and three of the participants reported no religion. Seven of the participants reported that they previously had sex education. The items in which Type I had the highest agreement were “Sexual relations come with responsibility” (Z = 2.00) and “Sexual activity should be based on love and trust” (Z = 1.71). The items that showed the highest disagreement were “I can do it if my partner wants to have sexual relations but not me” (Z = -2.37) and “Sexual desire must be satisfied even when it is with someone other than a spouse” (Z = -2.15).

The items on which Type I showed high agreement with Z scores > 1.00 compared with the other Types were as follows: “Sex offenders should be isolated from society” (Z score difference = 1.36) and “Sexual knowledge doesn’t have an influence on sexual behavior” (Z score difference = 1.28). The items on which Type I showed high disagreement compared with the other Types were “Marriage and sexual intercourse are two distinctly different issues” (Z score difference = -1.43) and “Homosexuality should be accepted as one of the sexual criteria” (Z score difference = -1.12) (Table 3).

Participant number 2, who had the highest factor weight in the Type I group, was a 20-year-old female Christian living with her parents. The items with her highest agreement were “I am offended when I contact an item of sexual pornography” and “I don’t understand homosexuality.” The reasons she chose those items were that she thought that (a) “Most pornography commercializes women and make women feel shame,” and (b) “Homosexual love is the result of corruption of the natural order because of its pursuit of only physical love.” The items with her highest disagreement were “I often talk about sex with friends and colleagues” and “There is a responsibility to victims of sexual violence.” The reasons she chose those items were that she thought that (a) “Sexuality is something to be kept precious and talking about sexuality without seriousness has a bad effect on the value of sexuality” and (b) “Shifting the responsibility onto victims of sexual violence is not valid and causes them a great deal of pain.”

Considering the results above, those from Type I did not accept equality toward sexual partners or sexual minorities and they demonstrated conservative subjectivity that sexuality should be present only in marriage. Type I also was identified as the traditional absolute purity type because they expressed sexist views that their sexual desires should be met only through their relationships with their partners and that the expression of female sexual desires is negative.

Type II: Open-minded compromise

The seven undergraduates in Type II were three females and four males. Their average age was 19.9 years, and six of the participants reported no religion. Three of the participants reported that they had previous sex education. The items on which Type II showed the highest agreement were “It is necessary that women express their sexual desire precisely” (Z = 1.72) and “Sex is needed by both women and men” (Z = 1.53). Meanwhile, the items on which Type II showed the highest disagreement were “I can do it if my partner wants to have sexual relations but not me” (Z = -1.88) and “I don’t understand homosexuality” (Z = -1.75).

The items on which Type II showed high agreement with Z scores > 1.00 compared with the other Types were “Homosexuality should be accepted as one of the sexual criteria” (Z score difference = 1.98) and “Marriage and sexual intercourse are two distinctly different issues” (Z score difference = 1.66). The items that Type II showed high disagreement compared with the other

Table 1 Sociodemographic Characteristics and Factor Weights for P Sample.

Type	No. of participant	Factor weight	Sex	Religion ^a	Grade	Residence type ^b	Sex education completion	Need sexual ethics education	Experience of romantic relationships
Type I (n = 15)	2	2.05	F	P	2	P	No	Yes	Yes
	22	1.94	F	N	3	A	Yes	Yes	No
	1	1.90	F	P	1	D	No	Yes	Yes
	26	1.47	F	C	3	P	Yes	Yes	Yes
	15	1.44	F	P	4	P	No	Yes	Yes
	43	1.29	F	P	1	P	Yes	Yes	Yes
	34	1.13	F	P	2	P	Yes	Yes	Yes
	23	1.05	F	C	3	D	No	Yes	Yes
	28	0.92	M	P	2	P	No	Yes	Yes
	25	0.88	F	N	3	A	No	Yes	Yes
	20	0.87	M	N	3	A	Yes	Yes	Yes
	19	0.86	M	P	3	A	Yes	Yes	Yes
	8	0.80	F	P	4	P	Yes	Yes	Yes
	6	0.72	F	C	1	D	No	Yes	Yes
	11	0.72	F	P	1	P	No	Yes	Yes
Type II (n = 7)	29	2.09	M	N	2	A	No	Yes	No
	3	1.88	F	N	2	A	No	Yes	Yes
	33	1.60	M	P	1	A	Yes	Yes	Yes
	31	1.14	M	N	2	P	Yes	Yes	Yes
	32	1.08	M	N	2	A	No	Yes	Yes
Type III (n = 21)	5	0.95	F	N	2	D	Yes	Yes	Yes
	35	0.57	F	N	2	P	No	Yes	Yes
	27	1.82	M	P	2	P	Yes	Yes	Yes
	37	1.64	M	N	1	A	Yes	Yes	No
	40	1.63	M	P	1	P	No	Yes	No
	7	1.51	F	B	1	D	No	Yes	Yes
	13	1.47	M	P	4	A	No	Yes	Yes
	14	1.29	M	P	4	A	No	Yes	Yes
	17	1.17	M	C	3	P	No	Yes	Yes
	9	1.17	F	P	4	P	Yes	Yes	Yes
	18	1.05	M	N	3	A	No	Yes	Yes
	10	1.03	M	C	4	A	Yes	Yes	Yes
	30	1.01	M	P	2	P	Yes	Yes	No
	36	0.98	M	P	1	P	No	Yes	Yes
	16	0.97	F	N	4	S	No	Yes	Yes
21	0.90	M	P	3	A	Yes	Yes	Yes	
38	0.85	M	N	1	P	Yes	Yes	Yes	
12	0.76	M	P	4	P	Yes	Yes	Yes	
41	0.74	F	P	1	P	No	Yes	Yes	
4	0.68	F	N	2	P	No	Yes	Yes	
42	0.67	F	P	1	P	No	Yes	Yes	
39	0.66	M	B	1	A	No	Yes	Yes	
24	0.63	F	P	3	A	No	Yes	Yes	

Note. ^aP = Protestant, N = None, C = Catholic; ^bP = Parents, A = Alone, D = Dormitory.

Types were “Abortion is contrary to bioethics” (Z score difference = -2.12) and “Sex offenders should be isolated from society” (Z score difference = -1.75) (Table 3).

Participant number 29, who had the highest factor weight in the type II group, was a 20-year-old male living alone with no religion. The items with his highest agreement were “Sex is needed by both women and men” and “Healthy sex is beautiful.” The reasons he chose those items were that he thought that (a) “Sexuality is an instinctive desire inherent in humans and needed by everyone,” and (b) “Sexuality is in itself a beautiful thing when it is experienced with healthiness.” The items with his highest disagreement were “I can do it if my partner wants to have sexual relations but not me” and “Abortion is contrary to bioethics.” His reasons were (a) “Sexual

relationships should be with mutual agreement that comes from the heart,” and (b) “The position of the person who cannot help but choose abortion can be more important than ‘right to life’ ethics.”

In sum, Type II was characterized as an open-minded compromise type because the participants who belonged to it were open about their perceptions of sexuality. They have a positive attitude not only to the need of the activity of satisfying sexual desires but to the need of abortion before they hold “right to life” ethics. They have their own view about support of sexual ethics appropriate to the changing times.

Type III: Rational responsibility

There were 21 undergraduates in Type III: 7 females and 14 males. Their average age was 20.9 years, and five participants reported that they had no religion. Eight of the participants had previous sex education. The items on which Type III showed the highest agreement were “Healthy sex is beautiful” ($Z = 1.80$) and “Sexual relations come with responsibility” ($Z = 1.64$). The items on which Type III showed the highest disagreement were “Sexual desire must be satisfied even when it is with someone other than a spouse” ($Z = -2.08$) and “Sexual ethics are not obligations, unlike social order” ($Z = -1.90$).

Table 2 Eigenvalue, Variance, Cumulative Percentage, and Correlations between Types.

Variables	Type I	Type II	Type III	
Eigenvalue	20.04	3.45	2.50	
Variance (%)	0.466	0.080	0.058	
Cumulative percentage (%)	0.466	0.546	0.604	
Correlations between types	Type I			
	II	1.00		
	III	.50	1.00	
		III	.72	1.00

Table 3 Each Type Item, Z scores Greater or Less than All Others, and Consensus Items by Type.

Type	Q statement	Z score	Average	Difference	Average Z score	
I	22. Sex offender should be isolated from society	1.04	-0.32	1.36		
	32. Sexual knowledge doesn't have an influence on sexual behavior	0.29	-0.99	1.28		
	13. I am still conservative about sex, while the society is open about sex	0.30	-0.97	1.26		
	25. Sexual ethics are not obligations, unlike social order	0.17	-1.04	1.21		
	27. Women need to let out their sexual desires	0.29	1.33	-1.04		
	39. Adolescents should be accepted as potential agents to have sex	-1.37	-0.29	-1.09		
	12. I tend to enjoy having a light physical affection	-1.60	-0.51	-1.09		
	29. Sex is needed by both women and men	0.45	1.56	-1.11		
	9. Homosexuality should be accepted as one of the sexual criteria	-0.80	0.32	-1.12		
	44. Marriage and sexual intercourse are two distinctly different issues	-1.25	0.18	-1.43		
	II	9. Homosexuality should be accepted as one of the sexual criteria	1.26	-0.72	1.98	
		44. Marriage and sexual intercourse are two distinctly different issues	0.81	-0.85	1.66	
		39. Adolescents should be accepted as potential agents to have sex	0.45	-1.20	1.65	
		14. Chastity is out of step with the times	0.28	-0.94	1.22	
		36. If ever one met other person, not a spouse, one's sexual desires should be satisfied	-0.96	-2.11	1.16	
27. Women need to let out their sexual desires		1.72	0.61	1.11		
13. I am still conservative about sex, while the society is open about sex		-1.24	-0.20	-1.05		
22. Sex offender should be isolated from society		-1.03	0.72	-1.75		
41. Abortion is contrary to bioethics		-1.73	0.39	-2.12		
III		41. Abortion is contrary to bioethics	0.93	-0.94	1.86	
	21. Pregnancy is sheer bliss	1.32	0.21	1.11		
	40. Banning abortion in all cases is wrong	-0.32	0.92	-1.24		
	32. Sexual knowledge doesn't have an influence on sexual behavior	-1.44	-0.13	-1.32		
	25. Sexual ethics are not obligations, unlike social order	-1.90	-0.01	-1.89		
	Consensus items	15. Sexual relations come with responsibility				1.66
		43. Healthy sex is beautiful				1.48
11. Sexual activity should be based on love and trust					1.33	
30. Interest in sex is needed for a healthy sexual life					1.04	
1. I avoid talking about sex, because I might be treated as an erotic person					-1.04	
5. Single mothers are undesirable for both themselves and their society					-1.13	
34. There is a responsibility to victims of sexual violence					-1.40	
17. I can do it if my partner wants to have sexual relations but not me					-2.01	

The items on which Type III showed high agreement with Z scores > 1.00 compared with the other Types were "Abortion is contrary to bioethics" (Z score difference = 1.86) and "Pregnancy is sheer bliss" (Z score difference = 1.11). The items on which Type III showed high disagreement compared with the other Types were "Sexual ethics are not obligations, unlike social order" (Z score difference = -1.89) and "Sexual knowledge doesn't have an influence on sexual behavior" (Z score difference = -1.32) (Table 3).

Participant number 27, who had the highest factor weight in the Type III group, was a 22-year-old male Christian living with his parents. The items with his highest agreement were "Sex offender should be isolated from society" and "Sex is needed by both women and men." He chose those items because he thought that (a) "Small crimes can lead to big crimes, and as sexual criminals would be few in the large mass of criminals, they should be isolated from society," and (b) "Sexuality is necessary for both man and woman of all generations." On the contrary, the items with his highest disagreement were "Sexual jokes with the opposite sex are inappropriate" and "Sexual ethics are not obligations, unlike social order." His reasons for choosing these items are (a) "Understanding the opposite sex is possible through natural conversation with the opposite sex," and (b) "Ethics, broadly speaking, are consistent with the law and therefore sexual ethics should be kept without requiring public order."

Thus, Type III was characterized as a rational responsibility type because the participants in this Type respected sexual ethics and "right to life" ethics. They demonstrated subjectivity regarding healthy sexuality and pregnancy, mostly based on their personal knowledge about sex and sexuality.

Consensus views of subjectivity about sexual ethics

The three different types were coexistent despite their independent characteristics, and consensus has been found in certain

views. As showed in Table 3, the undergraduate participants held common views regarding sexual ethics in the following statements: "Healthy sexuality is a beautiful thing," "Sexual relationships should occur only when they happen with love, belief, and responsibility," and "The position of unmarried mothers and victims of sexual violence should be dealt with from the social perspective."

Discussion

This study aimed to categorize undergraduate students' subjective sexual ethics into a typology and then describe the characteristics of those types. The results of the Q analysis revealed three types: traditional absolute purity, open-minded compromise, and rational responsibility.

Type I was not accepting of equality toward sexual partners or sexual minorities, and these participants demonstrated conservative subjectivity in that they thought that sexuality should be understood only in relation to marriage. Type I also expressed sexist views in that they thought that their sexual desires should be resolved only in relationships with their partners. They also thought negatively about the expression of female sexual desires. Feng et al [10] mentioned that undergraduates in Asian universities have negative perceptions toward homosexuality caused by their familiarity with the Confucian tradition, which emphasizes family and the value of gender roles. The Type I attitudes toward homosexuality were consistent with the idea that it is recognized as an alternative lifestyle on which positive perceptions are increasing although negative perceptions of it remain widespread [10,23]. Feng et al [10] found that the less an individual knows about homosexuality, the more negatively that individual perceives it. Considering that only 7 of the 15 (47.0%) participants in Type I had sex education, their lack of knowledge about homosexuality would affect their attitudes toward it. Type I also expressed generalized conservative tendencies, which is

consistent with previous findings that conservative people are relatively more likely to feel negatively toward homosexuality [23].

Type I also associated sexual relationships with marriage, an opinion that is harmonious with notions of maintaining premarital virginity to support women's dignity [11]. The participants in Type I were mostly women (80.0%) who identified as having a religion. Previous studies have consistently found a strong tendency among religious women to link sexual activity with marriage and to consider pregnancy and childbirth in the context of sexual relations. Moreover, although all but one of the participants had experienced a romantic relationship, they showed a conservative tendency toward sexuality. This finding suggests that there are factors such as power relationships between parents or in the family, past romances, and sexual experiences that may be important. Individual counseling and/or support group activities may be supportive to a sex education program for Type I individuals. Future studies that evaluate the effects of specialized counseling or sex education programs may reveal the underlying mechanisms of these attitudes.

Type II was characterized as the open-minded compromise type. The participants demonstrated an openness and acceptance of sexuality, recognized the necessity of satisfying sexual desires and abortion, and supported sexual ethics that fit the contemporary culture. These characteristics are similar to the finding that openness and acceptance of sexuality and flexibility about virginity are positively related to sexual activity and acceptance of premarital sexual relations [11–13]. Type II accepted abortion by recognizing women's sexual equality vis-à-vis men's. Their attitudes were similar to reported notions on the acceptability of abortion in cases of rape pregnancy or when a pregnancy could threaten a mother's health [24,25].

Unlike Type I, most Type II participants demonstrated positive attitudes toward homosexuality [26], which is in accord with previous research results finding that sexual desire is satisfied with sexual activity [14,27]. These participants were generous regarding sexuality both to themselves and to others, and they expressed their positive and open views. It is reasonable that undergraduate students are flexible in their perspectives and thinking compared with those of older people because they have a decreased aversion to sexuality through their exposure to it from an earlier age and they have relatively more opportunities to meet people with various sexual tastes.

Adhikari and Tamang [12] reported that the frequency of sexual activity is high and sexual tastes are open among people who are unmarried and living alone, characteristics that fit many of the participants in Type II. In the present study, about 57.0% of the Type II participants lived alone, compared with 27.0% of the Type I and 38.0% of the Type III participants (see Table 1). In addition, most of the Type II participants reported having no religion, which may relate to their positive desire for and expression of sexuality. To support the sex values in people who are in Type II, opportunities should be provided for them to contemplate the meaning and value of sexuality. That is, they should be guided toward healthy sex lives by decreasing the incidence of abortion and preventing the spread of venereal diseases through education on pregnancy, contraception, and sexually transmitted diseases.

Type III was characterized as rational responsibility and respect for sexual morality and "right to life" ethics. These participants demonstrated the subjectivity that values healthy sexuality and pregnancy based on self-responsibility for sexual knowledge and sexuality. The characteristics of Type III are similar to those in studies that found that college students should use effective contraception to prevent unwanted conception, considering that abortion is an immoral act [11,14]. Type III individuals need education that provides them with sexual knowledge because, from

this perspective, it is the lack of specific knowledge on sex that leads to unwanted pregnancies, abortions, social condemnation, and deprivation of educational opportunities as well as possible damage to health (e.g., sterility) [11,24]. Reis et al [15] reported that college students who have had sex education tend to have healthy and responsible sexual activities with fewer casual partners, a lower incidence of sexually transmitted diseases, and a lower rate of unwanted pregnancies and abortions because of their positive acceptance and practice of contraception.

These findings fit the principles that sex education that promotes healthy sexual activity improves sexual knowledge, then strengthens motivations, and ultimately modifies sexual activities. This is the behavior theory model of information–motivation–behavioral skills [16,28]. Sexual knowledge and value formation from knowledge inform morality regarding sexuality and life as well as induce reasonable sexual activity. To support Type III's practice of sexual activity based on plans and responsibility, a customized intervention program that considers a wide variety of scenarios related to sexuality (except for general sexual education) is needed.

All of the participants, regardless of their typology, agreed that healthy sexuality based on love and responsibility should be pursued and that sexually weak people, such as unmarried mothers or victims of sexual violence, should be embraced by society. The participating undergraduate students also linked sexual activity with love, and they extended such love into the altruistic aspects of human relationships that understand and defend the single mothers' and victims' situations. The variety within the sample is an acknowledgment of the diversity of social phenomena regarding sexuality. The participants showed subjective respect that supported responsible sexual activity and the consequences of sexual activity.

This study found that undergraduate students might benefit from sexual ethics education regardless of where they fall in the typology that emerged from this analysis. The participants showed a recognition of sexuality from a social, communal perspective in the frame of the ethics. Meanwhile, there were many female students with characteristics of the traditional absolute purity type, whereas many male students identified with the rational responsibility type, suggesting gender differences. These gender differences should be considered when implementing sexual ethics education and consultation plans for undergraduate students. Strong and solid sexual ethics lead to a strong and sound sexual life, enable healthy pregnancies and childbirths, and have positive effects on health later in adulthood. Moreover, strong sexual ethics contribute to broad personal relationships by promoting clear mutual understanding with sex partners or spouses and responsible personal behaviors.

Strengths and limitations

This study's value lies in its ability to widen the breadth of understanding of undergraduates' sexuality through a deeper understanding of their subjectivity. This understanding can be transposed onto counseling and instruction, and it can provide the basis for creating courses related to sexuality or health at the university level.

Preceding studies have mostly undertaken quantitative approaches to measure the level of knowledge and the different attitudes or the degree of positiveness or negativeness of the subjects. Unlike in previous works, the present study focused on exploring the internal properties of sexual ethics-related behaviors, that is, the type of pattern displayed by different individuals, with a consideration of the individuals' subjectivities in relation to sexual ethics. In identifying the sexual ethics-related patterns (i.e., the subjective properties) of undergraduate students within the Korean

sociocultural context, the researchers expected to contribute theoretical insights to the nursing knowledge.

A number of limitations may be inherent in this study. The first limitation concerns the small sample size. Second, the context was confined to a particular geographic location. Despite these limitations, this study offers valuable insights on sexual ethics in the Korean context.

Conclusion

The results indicated three types of undergraduate students' attitudes toward sexual ethics. All types showed a tendency to promote healthy sexual relationships based on love and responsibility, and embraced the stances of sexual minorities. Further, all types perceived that interest in sex is needed for an appropriate sexual life. The major findings of the study are noteworthy for adding depth to the notion of students' subjective attitude toward sexual ethics. As sexuality becomes more open and undergraduate students' sex lives become more active, it is important to understand the subjectivity of undergraduate students' sexual ethics. During this period, individuals have different sexual behaviors and activities compared with those of older people. For instance, undergraduate students have a high likelihood to undergo abortion and/or unwanted pregnancy. Thus, the establishment of sexual ethics for undergraduates will support healthy sex lives. Sound sexual ethics can be modeled and taught by making use of sex education and counseling programs that are tailored to the characteristics of the three types revealed in this study. In addition, this study found that measures need to be developed to implement effective sex education for undergraduate students, and continuous efforts should be made to reflect this in education policies.

Future research for clinical practice

Based on these results, sex education programs tailored according to the subjectivity of undergraduates' sexual ethics need to be developed. Further, their effects should be evaluated. This work also calls for studies focusing on the sex ethics of undergraduate students of different countries or cultures and the development of tools to measure their attitudes toward sex ethics.

Conflicts of interest

The authors declare no conflicts of interest.

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