The influence of sexual behaviour, attitude and awareness of sexual health on self-esteem in medical students

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THE INFLUENCE OF SEXUAL BEHAVIOUR, ATTITUDE AND AWARENESS OF SEXUAL HEALTH ON SELF-ESTEEM IN MEDICAL STUDENTS

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List of abbreviations

CI – Confidence Interval

CAS – Contraceptive Attitude Score

DSS – Double Standard Score

HIV – Human Immunodeficiency Virus

HOSRM – Handbook of Sexuality-Related Measures

HPV – Human Papilloma Virus

IBM – International Business Machines Corporation

IQR – Interquartile Range

RSE – Rosenberg Self-Esteem Scale

SIECUS – Sexuality Information and Education Council of the United States

SPSS – Statistical Package for Social Sciences

STI – Sexually Transmitted Infections

USSM – University of Split School of Medicine

1. INTRODUCTION

1.1. Self-esteem

Self-esteem is fundamental aspect of an individual's psychological well-being. It plays a vital role in shaping various aspects of life, including emotional well-being, mental health, relationships, and overall life satisfaction (1).

The basis of self-esteem is the individual's subjective evaluation of their own worth, competence, and value as a person. It is a multidimensional construct, encompassing both cognitive and affective components of the self and forming the basis for how individuals perceive themselves and how they interact with the world around them. A healthy level of self-esteem is crucial for developing a positive self-image and a sense of self-worth, which, in turn, can help individuals cope with life's challenges, setbacks and adversities. It comes as no surprise that healthy levels of self-esteem are associated with emotional resilience, assertiveness, and motivation, and can be beneficial in individuals coping with several important life domains such as relationships, school, work, and mental and physical health (2,3).

Healthy self-esteem significantly influences the quality of an individual's relationships. People with healthy self-esteem tend to have more satisfying and fulfilling relationships, as they are more likely to express their desires, concerns, and preferences openly (4). This ability to communicate effectively contributes to a deeper sense of intimacy and mutual understanding. Thus, individuals with healthy self-esteem are more likely to attract and maintain healthier social connections, as their self-asserted and positive demeanour can make them more approachable and socially acknowledged (5).

Conversely, low self-esteem can be detrimental to an individual's well-being. Individuals with a negative self-perspective tend to display destructive behaviour and emotions, such as self-doubt, anxiety and feelings of inadequacy (6,7). This internalization of negative beliefs can hinder personal growth, decision-making, and contribute to emotional distress (8). Individuals with low self-esteem may struggle to develop and maintain healthy relationships, as they may find it challenging to express their needs and establish boundaries effectively (9).

1.2. Factors Influencing Self-esteem

Factors influencing self-esteem can be broadly categorized into internal and external influences. Internal factors include self-perception, self-worth, and self-evaluation, while external factors encompass social support, cultural norms and life experiences.

1.2.1. Self-perception

In early childhood, self-perception is often rooted in interactions with caregivers and family members. These early relationships shape the initial framework for understanding oneself. As we grow, interactions with peers and societal influences broaden our self-perception. Adolescence, in particular, is marked by heightened self-awareness and the exploration of personal identity. This phase can bring about shifts in self-perception as individuals grapple with questions about who they are and where they fit in.

1.2.2. Self-worth

The foundation of self-worth is laid in early childhood, primarily through the care and attention received from caregivers. Positive experiences of being loved, valued, and validated by caregivers foster a sense of inherent worthiness. As individuals interact with peers and engage in various activities, their self-worth can either be bolstered by positive interactions or challenged by criticism or rejection. Adverse experiences or negative feedback can undermine self-worth. As we mature, cultivating self-compassion and a realistic understanding of our strengths and limitations becomes vital in shaping a healthy sense of self-worth.

1.2.3. Self-evaluation

Self-evaluation evolves in tandem with cognitive and emotional development. In childhood, self-evaluation may be relatively simple and concrete, focusing on observable achievements and behaviours. As cognitive abilities mature, individuals become capable of more nuanced self-assessment. Adolescence brings heightened self-consciousness, leading to both increased self-scrutiny and the comparison of oneself to peers.

This phase is pivotal in forming the basis for self-evaluation patterns in adulthood. Over time, individuals develop strategies for balancing self-critique with self-acceptance, allowing for a more constructive and adaptive self-evaluation process.

1.2.4. Social support, cultural norms & expectations

Supportive and nurturing environments, such as positive family dynamics, healthy relationships, and strong social support networks play a vital role in fostering a sense of belonging and validation, which, in turn, positively impact self-esteem (10).

The saying “a kind word goes a long way” echoes the evidence on the matter and seems to be particularly significant in children, who are highly receptive to external affirmations and validations. Children who receive consistent positive feedback and encouragement tend to develop a more positive self-image and higher levels of self-esteem.

Moreover, the cultivation of a positive self-image and self-acceptance, including body positivity and the recognition of personal strengths, can exert a significant impact on self-esteem (11). Individuals who tend to view themselves in a positive light and are comfortable with their identity tend to maintain higher self-esteem, as their self-worth isn't contingent upon external appearances or societal ideals.

Conversely, adverse experiences can profoundly and persistently impact self-esteem. Criticism, rejection, bullying, and traumatic events can lower self-esteem and contribute to a chronically negative self-perception (12). Lack of adequate social support can exacerbate this impact, potentially leading to long-term emotional distress and mental health issues (13,14).

Unrealistic beauty standards, trends, and peer pressure may significantly affect an individual's mental health, particularly when social support and healthy self-esteem levels are lacking (15,16). Puberty, marked by substantial transformations, magnifies these effects on self-esteem, potentially leading to struggles in self-acceptance (17). The convergence of disrupted self-image, social media influence, and peer pressure can contribute to a spectrum of behaviours, ranging from mood disorders to eating disorders and personality disorders.

1.3. Self-esteem and Sexuality

Despite extensive research on both self-esteem and human sexuality, there remains a gap in understanding the intricate relationship between self-esteem and sexuality. The complexity of human sexuality, influenced by biological, psychological, social, and cultural factors, presents challenges in establishing clear and universally applicable theories that encompass the diverse spectrum of sexual behaviours and attitudes.

Existing theories, such as Freud's Theory of Psychosexual Development, Bandura's Social Learning Theory, and Kohlberg's Theory of Cognitive Development, offered valuable insights into human development and behaviour.

However, they fail to fully capture the comprehensive interplay between self-esteem and sexual health due to their limitations in addressing the complex nature of sexuality. These theories often focus on specific developmental stages or behavioural aspects, overlooking the broader context of sexual expression and its impact on self-esteem.

For example, Freud's Theory of Psychosexual Development proposes that individuals progress through distinct stages of psychosexual development, with each characterized by a primary focus on specific erogenous zones. According to Freud, successful completion of each stage leads to a well-adjusted and sexually healthy individual (18). However, Freud's theory has been heavily critiqued for its lack of empirical support and for being overly deterministic in explaining human behaviour.

Similarly, Bandura's Social Learning Theory suggests that individuals learn behaviours and attitudes through observation and imitation of others. In the context of sexuality, this theory posits that individuals develop their sexual behaviours and attitudes by observing the actions of others in their social environment (19). While social learning certainly plays a role in shaping sexual attitudes and behaviours, it does not fully account for the complexity of sexual development.

Kohlberg's Theory of Cognitive Development focuses on the moral reasoning of individuals as they progress through distinct stages of cognitive development (20). While morality and ethics are important considerations in sexual behaviour, this theory does not provide a comprehensive framework for understanding the complexities of human sexuality and its influence on self-esteem. In light of these limitations, researchers have recognized the need for more comprehensive and integrated theories that account for the diverse factors influencing self-esteem and sexuality. Some researchers have proposed conceptual frameworks that consider the role of societal and cultural factors, individual differences, and contextual influences on sexual development and self-esteem. These integrative approaches seek to elucidate the bidirectional relationships between self-esteem and sexual health while acknowledging the complex interplay of biological, psychological, and social factors.

1.4. Self-esteem and Sexual Health

The relationship between self-esteem and sexual health is complex and bidirectional – not only do they influence one another, but they do so in many different ways. In general, healthy self-esteem can lead to positive sexual health outcomes and behaviours, while low self-esteem may have adverse effects on sexual behaviour and attitudes. Individuals with healthy self-esteem tend to have a more positive body image, which can enhance sexual confidence and satisfaction (21).

Feeling comfortable with one's own body is crucial for experiencing pleasure and intimacy in sexual encounters. Individuals with positive self-perception regarding their bodies are less likely to experience anxiety or shame regarding their sexuality, and are more likely to achieve more fulfilling sexual experiences (22).

Healthy self-esteem fosters a sense of sexual empowerment, enabling individuals to communicate their needs, set boundaries, and make informed decisions about their sexual health. Positive self-esteem plays a crucial role in open and honest communication within sexual relationships. People with healthy self-esteem are more likely to express their desires, concerns, and preferences openly, which can lead to more satisfying and mutually fulfilling sexual experiences. Moreover, individuals with healthy self-esteem are generally more assertive in seeking out information about sexual health, practicing safe sex, and taking responsible measures to protect themselves and their partners from sexually transmitted infections (STIs) and unintended pregnancies (23). They are more likely to engage in consensual and respectful sexual encounters, fostering positive sexual relationships.

Conversely, individuals with low self-esteem may face challenges in their sexual health and behaviours. Negative self-perception and feelings of inadequacy can lead to sexual anxieties and difficulties in intimate relationships (24). When individuals harbour negative beliefs about their desirability or worthiness, it can lead to inhibitions and difficulties in establishing intimate connections, hindering overall sexual well-being (25).

Additionally, people with low self-esteem may struggle with setting boundaries or communicating their sexual needs, which can lead to dissatisfaction in sexual relationships and hinder the development of healthy, intimate connections (26). It is essential to recognize that the relationship between self-esteem and sexual health is not unidirectional; it works both ways. Positive sexual experiences and healthy sexual relationships can contribute to enhanced self-esteem and overall well-being, reinforcing a positive cycle. When individuals experience

pleasure and satisfaction in their sexual encounters, it can lead to increased feelings of self-worth and confidence in their desirability as a partner. On the other hand, negative sexual experiences, such as sexual trauma or sexual dysfunction, can further erode self-esteem and impact overall psychological health (27).

Traumatic experiences can lead to feelings of shame, guilt, or self-blame, contributing to a diminished sense of self-worth. Additionally, sexual dysfunction can negatively affect an individual's sexual experiences, leading to self-doubt and a decline in self-esteem.

1.5. Sexuality

Sexuality is a vital component of human life that deals with pleasure and procreation. It is a complex behavioural phenomenon that places a developmental need for exploration of intimate and romantic relationships. While the underlying psychology at play is poorly understood, it is well documented that sexual expression – or lack thereof – is intricately connected with one's psychological, physical, sociocultural and spiritual well-being and function. In order to gain a better perspective of how societal dynamics impact the sexual expression of an individual, it is important to understand first how one's sexuality affects the individual itself - namely, their perception of self, their self-esteem and the general behaviour of the individual. Lack of data on this matter is a significant limiting factor in defining the limits of physiology and the onset of pathology.

1.6. Factors Influencing Sexuality

Societal norms, cultural differences, and individual experiences all heavily influence sexuality, making it challenging to establish standardized measures or normative values for sexual behaviour and attitudes. As a result, researchers often face difficulties in identifying consistent patterns and causal relationships between self-esteem and various dimensions of sexuality. Cultural norms and values may play a significant role in shaping an individual's sexual behaviours and attitudes. In cultures that are more conservative or bear strict religious beliefs, discussions about sex may be considered taboo, discouraged and even punished. This lack of openness and education can contribute to misconceptions and anxieties surrounding their sexual health, which in turn may adversely affect their self-image and thus, self-esteem.

Cultures and countries with established sexual education and open discussions about sexuality report higher levels of sexual knowledge and comfort regarding their sexuality (28).

Gender roles and expectations can also influence how individuals perceive themselves and their sexuality. Double standards regarding sexual behaviour may lead to gender disparities in sexual self-esteem and unhealthy attitudes towards sexuality.

Individual experiences can be significant drivers of sexual behaviour. Sexual trauma and abuse may cause long term debilitation. Survivors of sexual trauma may struggle with feelings of shame, guilt, or a diminished sense of self-worth, which can affect their ability to form intimate connections and experience pleasure in sexual relationships.

Moreover, an individual's sexual orientation and gender identity can also influence their self-esteem and experiences with sexuality. LGBTQ+ individuals may face unique challenges related to self-acceptance and societal acceptance, which can impact their self-esteem and overall well-being (29).

1.7. Sexual Education

Sexual education involves discussion of biological, emotional, social and ethical dimensions of sexuality. Its aim is to equip individuals with accurate and comprehensive information about sexual health, relationships, and reproduction. Sexual education helps promote healthy sexual behaviours, prevent sexually transmitted infections (STIs), reduce unintended pregnancies, and foster positive attitudes towards sexuality. Sexual education is typically provided by schools, healthcare professionals, community organizations, and governmental agencies. Its implementation varies greatly between countries and regions, depending on cultural, religious, and social norms.

A systematic approach to sexual education has yet to be globally accepted. Most countries have implemented education of the basic, biological factors of procreation, but not sexuality. As a result, myths about sexuality are often spread by word-of-mouth, cultural norms, and misinformation. The resulting misunderstandings can lead to various negative, unwanted effects. Abstinence-only education emphasizes abstinence from sexual activity until marriage and often excludes information about contraception and safe sex practices. Countries like Romania that have inconsistent and limited, abstinence-only sexual education, may reflect on that fact as they face the highest rates of teenage pregnancies compared to other EU countries (30). While condoms are known to offer a protective barrier against various STIs, various

misconceptions still arise from a lack of nuanced approach. One study reported their participants overestimating the protection by condom usage against pathogens such as HPV, syphilis and HIV (31).

Netherlands is often regarded as a model country for sexual education. Their comprehensive approach to sexuality beyond the mere biological aspects of reproduction seems to be working – The Netherlands consistently ranks among the countries with the lowest rates of teen pregnancy.

1.8. Medical Education

Incorporating comprehensive sexual health education into medical curricula can better prepare future healthcare providers to address patients' sexual health concerns sensitively and competently. Understanding the interrelationships between self-esteem and sexual health may help medical students recognize the importance of addressing psychosocial aspects of sexual well-being during patient interactions (32). Research shown that medical education positively impacts healthcare providers' confidence and competence in discussing sexual health matters with patients, leading to improved patient-provider communication and better patient outcomes. However, gaps in sexual health education within medical curricula have been identified, underscoring the need for comprehensive and standardized training (33,34).

In Croatia, there are currently no medical universities with comprehensive sexual education available for their students.

2. OBJECTIVES

The aim of this research is to gain insights into the attitudes, behaviour, and awareness of sexual health among the students of the Medical Faculty in Split. The research will determine the level of students' knowledge about sexual health, their attitudes towards their own and others' sexuality, and examine the influence of sexuality on their self-esteem.

HYPOTHESIS:

1. Integrated health education among medical students in Split has a positive impact on the development of healthy sexuality and self-esteem in individuals.
2. Socio-cultural conditions of individuals with high levels of education do not significantly affect the development of healthy sexuality and self-esteem in individuals.

3. MATERIALS AND METHODS

Participants and Procedure:

This study was approved by the Ethics Committee of the School of Medicine University of Split (USSM, ur.br.:2181-198-03-04-23-0034) and conducted according to the principles established by the Code of Medical Ethics and Deontology (Official Gazette 55/08 and 139/15), Helsinki Declaration.

The research was conducted at the School of Medicine, University of Split, from March to May 2023. The study included a total of 347 medical students from Croatian and English study programs, of all study years. The sample was divided further divided according to study type and gender. Croatian study group consisted of 162 medical students, 25 of which were male, 134 female and 2 transgender students. English study group was comprised of a total of 185 students, 51 of which were male and 134 were female students. A total of 76 male students completed the survey, along with 269 female and 2 transgender students.

The total sample size was estimated using the Raosoft sample size calculator, with a 99% confidence level and 1% margin of error. Response distribution was around 50% (Table 1.). All participants provided informed consent before completing on-line questionnaires.

Measures:

This study aimed to explore the intricate interplay between demographic factors, attitudes towards contraception, adherence to double standards, and self-esteem among medical students. The comprehensive analysis of the gathered data revealed patterns shedding light on the complex nature of these relationships.

Data Collection and Consent:

Participants were informed about the study through written Informed Consent forms, detailing the research objectives and questionnaire completion process. Questionnaires were coded, ensuring confidentiality of personal data, accessible only to the researcher. Consent was implied by completing the study's measurement instruments and selecting the "accept" option. Participants were free to withdraw at any point during questionnaire completion. We collected data using an electronic versionsemi-structured sociodemographic questionnaire made available online at the website https://docs.google.com/forms/d/e/1FAIpQLScqtsnpmLKENXAxg-xQrtgjo94OOGCeX20cL78CpOpSF26xXA/viewform?pli=1

Data collection will be conducted using standardized questionnaires:

1. Handbook of Sexuality-Related Measures (HOSRM, 2011):
    a. "Contraceptive Attitude Scale" questionnaire, consisting of 32 statements graded on a Likert scale to identify attitudes towards contraceptive methods and preferences for one method over another.
    b. "Double Standard Scale" questionnaire to determine the acceptability of traditional sexual double standards among educated individuals, based on 10 statements scored on a Likert scale.
    c. "Indicators of a Double Standard and Generational Difference in Sexual Attitudes" to examine similarities, differences, and influences within and between generations, scored on a Likert scale.
2. Rosenberg Self-Esteem Scale (RSE, Rosenberg, 1965):
    a. "Rosenberg Self-Esteem Scale" questionnaire with 10 statements based on the Guttman scale to evaluate individuals' self-esteem.

Study Criteria:

The study enrolled students of the University of Split, focusing on those studying medicine. Inclusion criteria were limited to students of the School of Medicine. Exclusion criteria included students not studying medicine.

MAIN OUTCOME MEASURES:

Questionnaires on the relationship between sexual responsibility and self-esteem among health study students will provide insights into the impact of education on the development of healthy sexuality in individuals.

The questionnaire on knowledge and attitudes will assess the level of awareness and understanding of the consequences of risky sexual behaviour.

Data analysis:

The student t-test was employed to examine the statistical significance of differences between various groups, as outlined in the provided tables. Specifically, this test was used to evaluate differences in variables such as the Contraceptive Attitude Scale (CAS), Double

Standard Scale (DSS), and Rosenberg Self Esteem Scale (RSE) scores across different categories, such as gender, relationship status, and study type.

We calculated the Pearson's correlation coefficient in order to assess the statistical significance of relationships between variables and explore the potential connections between various factors, as demonstrated in the tables. This correlation analysis evaluated the relationship between variables like age, gender, and attitudes towards contraception, self-esteem, and double standards. This systematic approach enabled the identification of statistically significant differences and correlations between different groups, with potentially valuable insights into the factors influencing the attitudes and behaviours of medical students. We reported frequencies, means ± standard deviation, medians with the interquartile (IQR) range as well as 95% confidence intervals (CI). We used *jamovi* (version 2.2.5) and IBM SPSS Statistics 26 for statistical analysis and considered a *P*-value <0.05 as significant.

4. RESULTS

A total of 347 medical students completed the survey, of which 269 were female, (77.5%), 76 male, (21.%) and 2 transgender students, as shown in Table 1. 134 female students from Medical studies in English and 135 female students from the Croatian counterpart university, as well as 51 male students from Medical Studies in English and 25 from the Croatian counterpart.

Table 1. Descriptives of medical students' population per gender, housing, and relationship status

	Study type	
	Croatian	**English**
Gender		
Male	25	51
Female	135	134
Transgender	2	0
Housing		
Campus residence halls	18	2
Other university housing	26	2
Off-campus housing	26	168
Parent's or guardian's house	92	13
Current relationship status		
Single (not in a relationship)	94	76
Committed relationship (only dating one person)	57	76
Non-committed relationship (casual)	1	21
Cohabitating (living together)	7	8
Married	3	4

Mean median age was highest in English male students (24.3 years) and lowest in Croatian female students (22.6 years).

Table 2. Descriptives of medical students' population per age

	Study type	**Gender**	**N**	**Mean**	**SD**	**Minimum**	**Maximum**
Age	Croatian	Male	25	23.4	2.34	18	27
		Female	135	22.6	2.3	17	33
		Transgender	2	23	1.41	22	24
	English	Male	51	24.3	2.32	20	29
		Female	134	23.7	2.13	18	31
		Transgender	0	-	-	-	-

We analyzed behavioural characteristics of medical students' population per gender, as shown in Table 3. Female students displayed more positive attitudes toward contraception (CAS mean = 127.9) compared to males (CAS mean = 110.6). The gender difference was even more pronounced in regards to endorsement of traditional sexual double standards (DSS), where female students had a lower DSS mean (23.5) compared to male students (29.1). This pattern was consistent across both study types.

Behavioural variations between male and female medical students were further examined by using the Student's t-test. We analysed the CAS, DSS and RSE scores between the two groups. The *P-values* for CAS and DSS were both *<0.001*, indicating substantial gender-based differences in contraceptive attitudes and double standards. Conversely, the *P-value* for RSE was *0.787*, suggesting no significant difference in self-esteem between genders.

Table 3. Behavioural characteristics of medical students' population per gender

				95% CI		
	Gender	**N**	**Mean**	**Lower**	**Upper**	**SD**
Contraceptive Attitude Scale (CAS)	Male	76	110.6	106.6	114.6	17.71
	Female	269	127.9	126.3	129.5	13.51
	Transgender	2	112	84.6	139.4	19.8
Double Standard Scale (DSS)	Male	76	29.1	27.6	30.7	7.01
	Female	269	23.5	22.8	24.2	5.58
	Transgender	2	34.5	29.6	39.4	3.54
Rosenberg Self Esteem Scale (RSE)	Male	76	18.3	17.2	19.4	5
	Female	269	18.5	17.9	19	4.57
	Transgender	2	22.5	13.7	31.3	6.36

Current relationship status also impacted behavioural characteristics. Students in committed relationships exhibited higher contraceptive attitudes (mean = 125.4) compared to those in non-committed relationships (mean = 126.1), as shown in Table 4.

Table 4. Behavioural characteristics of medical students' population per current relationship status

				95% CI			
	Current relationship status	**N**	**Mean**	**Lower**	**Upper**	**Median**	**SD**
Contraceptive Attitude Scale (CAS)	Single (not in a relationship)	170	123.6	121.1	126.1	128.5	16.6
	Committed relationship (only dating one person)	133	125.4	122.8	128.1	131	15.6
	Non-committed relationship (casual)	22	126.1	120.7	131.5	128	12.9
	Cohabitating (living together)	15	117.3	108.6	125.9	120	17
	Married	7	114.7	97.7	131.7	124	23
Double Standard Scale (DSS)	Single (not in a relationship)	170	25.4	24.4	26.4	25	6.59
	Committed relationship (only dating one person)	133	24.1	23	25.1	22	6.16
	Non-committed relationship (casual)	22	24	21.4	26.6	23	6.23
	Cohabitating (living together)	15	26.4	23	29.8	27	6.75
	Married	7	23	20	26	22	4
Rossenberg Self Esteem Scale (RSE)	Single (not in a relationship)	170	18.6	17.9	19.3	18	4.6
	Committed relationship (only dating one person)	133	18.2	17.4	19.1	18	4.79
	Non-committed relationship (casual)	22	18.4	16.3	20.5	17	5
	Cohabitating (living together)	15	18.4	16.1	20.7	19	4.6
	Married	7	19.3	16.4	22.2	20	3.9

We compared behavioural characteristics between Croatian and English medical students and revealed that English students displayed slightly more positive attitudes towards contraception (CAS mean = 125.3) compared to Croatian students (CAS mean = 122.5), as seen in Table 4. The same trend was observed for traditional sexual double standards (DSS). However, English students had lower self-esteem scores (RSE mean = 17.1) than Croatian students (RSE mean = 20), suggesting potential cultural or educational differences in self-perception. Utilizing the Student's t-test, we compared the results of CAS, DSS and RSE across different study types in order to evaluate behavioural differences between medical students of different study programs. The results (*P-values* 0.108 and 0.745, respectively) suggested no significant differences in attitudes towards contraception and double standards between different study programs, However, for RSE, the Student's t-test yielded a *P-value* <0.001, indicating a significant difference in self-esteem between Croatian and English medical students.

Table 5. Behavioural characteristics of medical students' population per study type

	Study type	N	Mean	95% CI Lower	95% CI Upper	Median	SD
Contraceptive Attitude Scale (CAS)	Croatian	162	122.5	120.1	125	126	16
	English	185	125.3	123	127.7	131	16.3
Double Standard Scale (DSS)	Croatian	162	24.7	23.8	25.6	23	5.98
	English	185	24.9	23.9	25.9	24	6.74
Rossenberg Self Esteem Scale (RSE)	Croatian	162	20	19.2	20.8	19	5.12
	English	185	17.1	16.6	17.6	17	3.73

Correlation between individual characteristics (age, gender) of medical students and their behaviour (CAS, DSS, RSE scores). DSS scores display a negative correlation with self-esteem scores, suggesting that individuals with higher endorsement of traditional double standards tend to have lower self-esteem. Additionally, gender exhibits moderate correlations with CAS and DSS scores, indicating that gender impacts attitudes toward contraception and double standards. Significant positive correlation was found between CAS scores and gender ($r = 0.442$, $P < 0.001$), signifying that female students tended to exhibit more positive attitudes towards contraception.

Table 6. The relationship between individual characteristics of medical students and their behaviour

		Contraceptive Attitude Scale (CAS)	Double Standard Scale (DSS)	Rossenberg Self Esteem Scale (RSE)	Age	Gender
Contraceptive Attitude Scale (CAS)	Pearson's r	—				
	P-value	—				
	N	—				
Double Standard Scale (DSS)	Pearson's r	-0.589***	—			
	P-value	< .001	—			
	N	347	—			
Rossenberg Self Esteem Scale (RSE)	Pearson's r	-0.071	-0.149**	—		
	P-value	0.184	0.005	—		
	N	347	347	—		
Age	Pearson's r	-0.011	-0.04	-0.1	—	
	P-value	0.839	0.46	0.062	—	
	N	347	347	347	—	
Gender	Pearson's r	0.442***	-0.369***	0.015	-0.148**	—
	P-value	< .001	< .001	0.787	0.006	—
	N	345	345	345	345	—

*Note. * P < .05, ** P < .01, *** P < .001*

Table 7. displays the partial correlation between individual characteristics (age, gender), sexual behaviour (CAS and DSS) and self-esteem (RSE) of medical students. Controlling for RSE, a significant negative correlation was observed between DSS scores and age (r = -0.608, $P < 0.001$), indicating that age-associated variations in double standards were linked to self-esteem. Moreover, a positive correlation between CAS scores and gender was retained (r = 0.444, $P < 0.001$), suggesting a gender-related influence on attitudes towards contraception, even when accounting for self-esteem.

Table 7. The partial correlation of individual characteristics of medical students and their sexual behaviour with self esteem

		Age	Gender	Contraceptive Attitude Scale (CAS)	Double Standard Scale (DSS)
Age	Pearson's r	—			
	P-value	—			
Gender	Pearson's r	-0.147**	—		
	P-value	0.006	—		
Contraceptive Attitude Scale (CAS)	Pearson's r	-0.018	0.444***	—	
	P-value	0.736	< .001	—	
Double Standard Scale (DSS)	Pearson's r	-0.056	-0.371***	-0.608***	—
	P-value	0.302	< .001	< .001	—

Note. controlling for 'Rossenberg Self Esteem Scale (RSE)'

*Note. * P < .05, ** P < .01, *** P < .001*

5. DISCUSSION

The results of our research revealed distinct interaction emerged between age, double standards, and self-esteem.

We found a negative correlation between age and adherence to double standards. When controlling with RSE, a significant negative correlation was observed between DSS scores and age (r = -0.608, $P < 0.001$), indicating that age-associated variations in double standards were linked to self-esteem.

This pattern of findings resonates with psychological theories emphasizing the role of cognitive development and increasing self-awareness during the journey from youth to adulthood. The journey from youth to adulthood was marked by cognitive development and increasing self-awareness, aligning with psychological theories that emphasize these factors.

This finding resonates with Kohlberg's Theory of Moral Development, specifically the stages of moral reasoning. Kohlberg's theory proposes that individuals progress through a series of moral stages, each characterized by increasing complexity in their moral reasoning abilities (35). In the early stages of Kohlberg's theory, particularly the pre-conventional stage, individuals tend to make moral judgments based on self-interest and obedience to authority. At this stage, individuals are more likely to endorse double standards because their moral judgments are primarily centred around avoiding punishment and seeking personal gain. Their perspective is less concerned with consistent and universal moral principles (36).

Younger individuals, who are in the earlier stages of moral development, might perceive certain behaviours or standards differently based on their personal interests and desires. This could lead them to rationalize double standards, as they prioritize their own interests over the application of consistent moral principles. As individuals progress through higher stages of moral reasoning in Kohlberg's theory, they develop a more nuanced and principled approach to moral dilemmas, which is less likely to endorse double standards. While Kohlberg's theory provides valuable insights into the potential developmental factors that could lead to the endorsement of double standards at younger ages, it's essential to consider the broader context and the interplay of other psychological theories as well.

A study in Spain reported similar results and revealed an inverse correlation between age and the extent of endorsement of double standards (37). Another study conducted among undergraduate university students in 22 countries reported younger age, low life satisfaction and low impulse control in association with contraceptive non-use (38).Self-esteem, defined as an individual's overall evaluation of their worth and capabilities, exerts considerable influence

on the manner in which individuals navigate their sexual lives. The dynamic interplay between self-esteem and sexuality unveils a complex framework that merits scientific scrutiny.

Self-esteem's impact on sexuality is manifested through various dimensions. Firstly, self-esteem shapes an individual's self-concept, encompassing their perceptions of body image, attractiveness, and sexual desirability. Higher levels of self-esteem are often linked to positive body image perceptions, fostering a sense of comfort and confidence in one's physical appearance, which can profoundly affect one's engagement and satisfaction in sexual interactions (39). Individuals with healthier self-esteem tend to engage in more assertive communication, express desires and boundaries clearly, and seek out partners who respect and reciprocate their self-worth. In contrast, lower self-esteem can manifest in vulnerability to entering relationships that might not align with one's genuine desires or well-being (40).

It's worth acknowledging the reciprocal nature of this relationship, where sexual experiences also feed back into self-esteem. Positive sexual encounters can bolster self-esteem by fostering a sense of sexual competence and desirability (41). Conversely, unsatisfactory or negative sexual experiences might exacerbate self-esteem issues, potentially leading to a cycle of diminished sexual confidence (42).

Many studies confirm this. The bidirectional influence of self-esteem and sexuality can be seen in many examples: from aging patients, breast cancer survivors to sex workers. A study in Portugal suggested sexual satisfaction, in addition to self-esteem, may lead to direct improvements in sexual, mental and physical health in elderly (43). A study on women with breast carcinoma revealed psychological implications of breast cancer on self-esteem, particularly in the aspect of sexuality. A study in Africa reported women with low self-esteem were more likely to engage in transactional sex (44).

The linkage between self-esteem and sexual behaviour extends to matters of sexual satisfaction and exploration. Individuals with higher self-esteem tend to exhibit greater sexual assertiveness, a willingness to initiate sexual encounters, and a greater propensity to explore diverse aspects of their sexual identity. Conversely, lower self-esteem can be associated with inhibited sexual expression, hindered exploration of one's desires, and compromised sexual well-being (45).

The examination of behavioural characteristics across different study programs revealed intriguing cross-cultural variances. While there were no substantial differences observed in attitudes towards contraception and double standards between the Croatian and English study

groups, suggesting that education may help individuals overcome sociocultural trends and pressures. Furthermore, Croatian medical students exhibited higher levels of self-esteem than their English counterparts. This difference may be contextual.

The difference in levels of self-esteem could be attributed to contextual factors such as religious beliefs and socioeconomic circumstances. Croatia's cultural landscape is often influenced by conservative religious perspectives that might impact perceptions of self-esteem and sexual attitudes. Additionally, variations in socioeconomic conditions between the different countries could contribute to differing self-esteem levels, with factors like economic stability and access to resources potentially shaping individuals' self-perceptions. Acculturative stress may play into this as well. A study done in Romania revealed international students are more likely to suffer higher levels of stress than their local counterparts (46).

One of the prominent findings in this study relates to the influence of gender on attitudes towards contraception. The analysis showed a significant positive correlation between gender and attitudes towards contraception, with females exhibiting more favourable views compared to males. We observed the consistency of this pattern even after accounting for self-esteem, suggesting that gender inherently holds a role in shaping perceptions of contraception among medical students. A similar study conducted in Portugal also reported women displaying more positive contraceptive attitudes compared to men (47).

Current relationship status also impacted behavioural characteristics. Students in committed relationships exhibited higher contraceptive attitudes compared to those in non-committed relationships. Similarly, a study in Conneticut had lower CAS scores for males compared to their female counterpart, particularly for men in non-committed relationships, while CAS scores in women decreased when they were in committed relationships (48).

Our results have also shown gender heavily influences adherence to double standards. Numerous studies have shown greater adherence to double standards in men than women, even when accounting for factors such as age, life satisfaction and education (49-51).

Still, striking phenomena can be seen in this context and education seems to play a role. Both men and women with a higher level of education tend to display lower endorsement of double standards compared to other group, suggesting the possibility of reinventing the generational perception of gender roles and sexual attitudes. Some studies oppose this finding. A study in Spain, for example, revealed endorsement of SDSS did not falter with high education

(52) A study in China highlighted the importance of the sociocultural context of the individual when assessing double standards (53).

It would seem the type of education matters in this case, as demonstrated in a study done across different schools where they established gender-based and education-based differences in sexual attitudes (54). Sex education specifically has been shown to decrease DSS scores among participants, as demonstrated by a study conducted in China (55).

Following this train of thought, it would seem logical that medical students would have greater understanding of sexual health and hold more positive sexual and contraceptive attitudes, as well as reject double standards more readily than the rest. A parallel study conducted at USSM revealed medical students held more positive contraceptive attitudes and were less likely to uphold double standards when compared to non-medical students (56).

Double standards represent intricate reflections of societal norms, encompassing both gender-specific expectations and dynamics of self-perception (57). For women, these standards can lead to feelings of inequity and internal conflict, particularly when societal expectations clash with personal values and aspirations. This could potentially affect their self-esteem and overall well-being. On the other hand, for men, such standards might inadvertently contribute to the reinforcement of traditional gender roles, impacting their perceptions of relationships and fostering attitudes that undermine gender equality. Despite educational advancements and geographical variations, the persistence of these standards reflect deeply rooted cultural paradigms, making them challenging to address. Their persistence is a testament to the complex interplay of age, self-esteem, and gender. Unravelling and reshaping these norms requires not only educational initiatives but also a deeper examination of the psychological, sociocultural, and gender-specific factors that contribute to their persistence.

Limitations and Future Directions:

It is essential to acknowledge certain limitations in the present study. The survey design relies on self-reported data, which can be susceptible to response bias. The disproportionately low number of male participants raises concerns about generalizability and robustness of findings, particularly when assessing gender-related differences in attitudes. Unaccounted cultural differences could also confound the results of the study.

5. CONCLUSION

1. Understanding the complex relationship between self-esteem and sexuality is crucial for holistic sexual health promotion.

2. Examining the interaction of self-esteem and sexual health can deepen our understanding of human sexuality's impact on psychological well-being.

3. Empowering individuals with healthy self-worth can enhance overall well-being and happiness.

4. Deeper comprehension of these dynamics can lead to better strategies for promoting healthier attitudes and behaviors related to sexuality.

5. Findings emphasize the importance of gender and relationship status in shaping medical students' behavior, guiding educational interventions.

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8. SUMMARY

Objective: This study aimed to examine the connections between self-esteem, gender, and attitudes towards sexuality and contraception in medical students. Specifically, the influence of self-esteem on gender-based differences in these attitudes was investigated.

Methods: Cross-sectional study conducted from March to May 2023, the study involved 347 medical students from Croatian and English programs across all years. Participants provided informed consent and completed online questionnaires that measured attitudes towards sexuality, contraception, self-esteem, and demographic information.

Results: : Statistically significant findings included a negative correlation between age and adherence to double standards ($P < 0.001$). Additionally, gender was positively correlated with favorable attitudes towards contraception ($P < 0.001$), a pattern persisting even after considering self-esteem.

Conclusion: This study underscores the complex relationship between self-esteem, gender, and attitudes towards sexuality and contraception among medical students. Findings highlight the role of self-esteem in age-related double standard variations and affirm gender's impact on contraceptive attitudes. These insights contribute to understanding the psychological dynamics shaping attitudes in medical education.

9. CROATIAN SUMMARY

Cilj: Cilj ovog istraživanja bio je ispitati povezanost između samopoštovanja, rodnih razlika i stavova studenata prema seksualnosti i kontracepciji. Konkretno, istraživao se utjecaj samopoštovanja na rodno uvjetovane razlike u tim stavovima.

Metode: Istraživanje je provedeno od ožujka do svibnja 2023. godine te je obuhvatilo 347 studenata medicine s hrvatskih i engleskih programa svih godina studija. Sudionici su dali informirani pristanak i ispunili online upitnike koji su mjerili stavove prema seksualnosti, kontracepciji, samopoštovanju i demografske podatke.

Rezultati: Statistički značajni rezultati uključivali su negativnu korelaciju između dobi i pridržavanja dvostrukih standarda ($P < 0,001$). Nadalje, spol je bio pozitivno povezan s povoljnim stavovima prema kontracepciji ($P < 0,001$), čak i nakon uzimanja samopouzdanja u obzir.

Zaključak: Ovo istraživanje ističe kompleksne odnose između samopoštovanja, rodnih razlika i stavova prema seksualnosti i kontracepciji među studentima medicine. Pronalasci naglašavaju ulogu samopoštovanja u dobno uvjetovanim varijacijama dvostrukih standarda te potvrđuju utjecaj spola na stavove prema kontracepciji. Ovi uvidi doprinose razumijevanju psiholoških dinamika koje oblikuju stavove u medicinskom obrazovanju.

10. SUPPLEMENT

DEMOGRAPHIC SECTION

1. Which of the following do you consider yourself?

Male

Female

Transgender

2. What is your current relationship status?

Single (not in a relationship)

Committed relationship (only dating one person)

Non-committed relationship (casual)

Cohabitating (living together)

Married or partnered

3. Which of the following commonly used terms best describes you?

Heterosexual

Gay or lesbian

Bisexual

Transgender

Questioning

4. Where do you currently live?

Campus residence halls

Greek housing

Other university housing

Off-campus housing

Parent's or guardian's house

CONTRACEPTIVE ATTITUDE SCALE

SCALE: 1=Strongly agree, 2=moderately agree, 3=mildly agree, 4=mildly disagree, 5=moderately disagree, 6=strongly disaagree

1. I believe that it is wrong to use contraceptives.
2. Contraceptives reduce the sex drive.
3. Using contraceptives is much more desirable than having an abortion.
4. Males who use contraceptives seem less masculine than males who do not.
5. I encourage my friends to use contraceptives.

6. I would not become sexually involved with a person who did not accept contraceptive responsibility.
7. Teenagers should not need permission from their parents to get contraceptives.
8. Contraceptives are not really necessary unless a couple has engaged in intercourse more than once.
9. Contraceptives make sex seem less romantic.
10. Females who use contraceptives are promiscuous.
11. I would not have intercourse if no contraceptive method was available.
12. I do not believe that contraceptives actually prevent pregnancy.
13. Using contraceptives is a way of showing that you care about your partner.
14. I do not talk about contraception with my friends.
15. I would feel embarassed discussing contraception with my friends.
16. One should contraceptives regardless of how long one has known his/her sexual partner.
17. Contraceptives are difficult to obtain.
18. Contraceptives can actually make intercourse more pleasurable.
19. I feel that contraception is solely my partner's responsibility.
20. I feel more relaxed during intercourse if a contraceptive method is used.
21. I prefer to use contraceptives during intercourse.
22. In the future, I plan to use contraceptives any time I have intercourse.
23. I would practice contraception even if my partner did not want me to.
24. It is no trouble to use contraceptives.
25. Using contraceptives makes a relationship seem too permanent.
26. Sex is not fun if a contraceptive is used.
27. Contraceptives are worth using, even if the monetary cost is high.
28. Contraceptives encourage promiscuity.
29. Couples should talk about contraception before having intercourse.
30. If I or my partner experienced negative side effects from a contraceptive method, we would use a different method.
31. Contraceptives make intercourse seem too planned.
32. I feel better about myself when I use contraceptives.

DOUBLE STANDARD SCALE

SCALE: 1=Strongly agree, 2=moderately agree, 3=mildly agree, 4=mildly disagree, 5=moderately disagree, 6=strongly disaagree

1. It is expected that a woman be less sexually experienced than her partner.
2. A woman who is sexually active is less likely to be considered a desirable partner.
3. A woman should never appear to be prepared for a sexual encounter.
4. It is important that the men be sexually experienced so as to teach the women.
5. A „good“ woman would never have a one-night stand, but it is expected of a man.
6. It is important for a man to have multiple sexual experiences in order to gain experience.
7. In the sex the man should take the dominant role and the woman should assume the passive role.
8. It is acceptable for a woman to carry condoms.
9. It is worse for a woman to sleep around than it is for a man.
10. It is up to the man to initiate sex.

ROSSENBERG SELF-ESTEEM SCALE

SCALE: 1=Strongly agree, 2=moderately agree, 3=mildly agree, 4=mildly disagree, 5=moderately disagree, 6=strongly disaagree

1. On the whole, I am satisfied with myself.
2. At times I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I am able to do things as well as most people.
5. I feel i do not have much to be proud of.
6. I certainly feel useless at times.
7. I feel that I'm a person of worth, at least on an equal plane with others.
8. I wish I could have more respect or myself.
9. All in all, I am inclined to feel that I am a failure.
10. I take a positive attitude towards myself