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Perceived Influence of Sexual Educational Sources and Topics on Sexual Health Practices, Sexual Satisfaction, and Consent in Germany and South Africa

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Erasmus Mundus Master in the Psychology of Global Mobility, Inclusion and Diversity in Society

Supervisor:
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June, 2023

CIÊNCIAS SOCIAIS
E HUMANAS

Department of Social and Organizational Psychology

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Acknowledgement

We want to thank all the participants of this survey for taking time in the participation and answering all questions with attention. Further, I want to thank my supervisor David L: Rodrigues for the support and input to finish my master's degree. I am thankful for the opportunity to have been able to grow not only on the academic level, but also on the personal level through the Global-Minds program. I am further grateful for my classmates and friends who were there to support me when my mental health was bad and helped me through my burnout. I would also thank my family for the financial support they gave me so I could focus on my thesis, and I don't have to stress about money. The completion of this research project was a rollercoaster for me, I went through the most difficult times, and doing a joint degree in different countries can be challenging. Also, my research topic was close to my heart since I am a survivor of sexual violence it was not only research but rather a "me"-search. So, I am grateful for this journey full of sweat and tears as I learned a lot about myself and where I want to be. Lastly, I am proud of myself and all my classmates. We made it!

Resumo

Num estudo correlacional, explorámos associações entre a perceção de influência da educação sexual em múltiplas variáveis de saúde sexual e bem-estar sexual (SSBE). Recolhemos dados de pessoas sexualmente activas na Alemanha (N = 284) e na África do Sul (N = 142) e comparámos a a perceção de influência de diferentes fontes de educação sexual (i.e., tradicional/moderna e formal/informal) e de tópicos (i.e., saúde sexual reprodutiva [SSR], prazer sexual e abuso sexual) em práticas de saúde sexual, incluindo o uso de preservativos e a frequência de testes para infecções sexualmente transmissíveis (ISTs), satisfação sexual e consentimento sexual. Os resultados da nossa análise revelaram diferenças na perceção da influência das diferentes fontes e tópicos de educação sexual. Na amostra sul-africana, participantes indicaram maior influência percebida de fontes informais tradicionais e informais modernas de educação sexual em todos os tópicos. Além disso, a perceção da influência de fontes tradicionais formais que abordam a violência sexual e de fontes modernas formais que abordam a SSR e a violência sexual foi mais elevada na amostra sul-africana. Além disso, foram detectadas diferenças nos resultados da SSBE, incluindo uma maior frequência de testes de ISTs, mais comunicação sobre saúde sexual e mais experiência de consentimento interno e consentimento externo na amostra sul-africana. As correlações entre a perceção da influência das fontes de educação sexual e os resultados de SSBE revelaram, na sua maioria, semelhanças entre as duas amostras. Apesar disso, foram detectadas diferenças no padrão de correlações. Por exemplo, na amostra alemã, foram detectadas correlações negativas entre a perceção da influência da educação sexual e o consentimento interno, bem como uma falta de correlação significativa entre a perceção das fontes de educação sexual e a utilização de preservativos. De um modo geral, prevaleceu a correlação entre a perceção de uma maior influência da educação sexual recebida de diferentes fontes e a realização mais frequente de testes de IST, uma maior comunicação sexual e uma maior satisfação sexual em ambas as amostras. De um modo geral, os resultados mostraram que a contextualização e a adequação das necessidades específicas do grupo-alvo dos programas de educação sexual são essenciais.

Palavras-chave: educação sexual, saúde e bem-estar sexual, práticas sexuais mais seguras, satisfação sexual, consentimento, estudo transversal

Abstract

In a cross-section study, we explored associations between the perceived influence of sexual education on multiple sexual health and well-being (SHWB) outcomes. We collected data from sexually active people in Germany (N = 284) and South Africa (N = 142) and compared the perceived influence of different sexual educational sources (i.e., formal/informal, and traditional/modern) and topics (i.e., sexual reproductive health [SRH], sexual pleasure, and sexual abuse) on sexual health practices including condom use and the frequency of testing for sexual transmitted infections (STIs), sexual satisfaction, and sexual consent. The results of our analysis detected differences in the perceived influence of the different sexual educational sources and topics. In the South African sample, participants reported more perceived influence from informal traditional and informal modern sexual education sources across all topics. Additionally, the perceived influence of formal traditional sources addressing sexual violence and of formal modern sources addressing SRH and sexual violence was higher in the South African sample. Moreover, differences in SHWB outcomes were detected including a higher reported frequency of STI testing more sexual health communication, and more experience of internal consent, and external consent in the South African sample. The correlations between the perceived influence of sexual educational sources and SHWB outcomes showed mostly similarities between both samples. Nevertheless, differences in the correlation were detected. For instance, in the German sample negative correlations between the perceived influence of sexual education and internal consent as well as a lack of significant and positive correlation between the perceived of sexual educational sources and condom use were discovered. In general, the correlation between perceiving more influence from sexual education received in different sources and more frequent STI testing, more sexual communication and more sexual satisfaction became prevalent in both samples. Taken together, the results showed that the contextualization and the tailoring of specific needs regarding the target group of the sexual educational programs is essential.

Key words: sexual education, sexual health and well-being, safer sex practices, sexual satisfaction, consent, cross-sectional study

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1. Literature Review & Theoretical Background

1.1. Sexual Health and Well-being

Sex plays a crucial part in people's life (Malhi & Bell, 2022) with implications for human connection, general personal health, well-being, and family planning (Mitchell et al., 2021). Overall, a better sex life is contributing to a longer, healthier, and happier life (Buczak-Stec et al., 2019). Sexual health and well-being (SHWB) is defined as the "state of physical, emotional, mental, and social well-being in relation to sexuality" by the World Health Organization (WHO, 2010). Therefore, considering SHWB as more than the mere absence of diseases is important (DiClemente et al., 2005).

A biopsychosocial-cultural framework of sexual wellness in mid- and later life was developed by Syme et al., 2018 through a thematic analysis focusing on the question of the definition of sexual wellness. They constructed a framework to define sexual wellness including biological-behavioral (functioning, behaviors/script), psychological (cognition, emotions, concepts), cultural (age/time in life; gender, sexual orientation), and social factors (relationship, shared experiences). In compliance with the biopsychosocial-cultural framework, SHWB must be conceptualized around sexual health, sexual pleasure, sexual well-being, and sexual justice (Mitchell et al., 2021), since SHWB is first a human right, but moreover critical for reproductive health and health in general (Sladden et al., 2021). However, there is still a predominant focus on negative SHWB outcomes (including STIs, HIV, sexual violence, or unintended pregnancy) over positive outcomes (Ford et al., 2019). For instance, sexual pleasure is an important part of sexuality and is often neglected in health promotion programs, for example, sexual education (Allen & Carmody, 2012).

Poorer SHWB has negative outcomes at different levels. It is a public health issue with impacts on the economic and social development of communities, societies, and countries (WHO, 2010). The Global Burden of Diseases, Injuries, and Risk Factors (GBD) public health research project collected data to ensure evidence-based and reliable decision-making related to public health outcomes (Zheng et. al., 2021). Results showed that sexually transmitted infections (STIs) are still among the most prevalent acute infectious conditions which results in a major public health challenge. For instance, the age-standardized incidence rate for STIs in 2019 was under 8515 per 1000 000 persons in Germany. In contrast, the age-standardized incidence rate for STIs in 2019

was over 12666 per 100 000 persons in South Africa (Zheng et. al., 2021). Whereas the change in incident cases from 1990 to 2019 was between -20% to -0.01% in Germany, the change in incidents was 50% to 99.99% in South Africa (Zheng et al., 2021). These data illustrated the differences between Germany and South Africa regarding the burden of STIs and their development over the last 20 years (Zheng et. al., 2021).

Moreover, human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) are still severely impacting the health of millions of people (Pandey & Galvani, 2019). Besides efforts and progress in the use of treatment as a prevention intervention, it was estimated that around 2 million new cases of infections arise globally every year (Frank et al., 2019). In 2017, there were 6430 reported new HIV infections in Germany with 465 HIV-related deaths. In South Africa on the other hand, 276 000 new cases of HIV were reported with 135 000 HIV-related deaths (Frank et al., 2019).

Beyond the global health burden, the treatment and loss of workforce due to bad sexual health are expensive (Kennedy et al., 2022). For instance, the direct financial burden of medical costs in the United Sate was around 16 billion dollars in 2018 (Weinstock et a., 2021). Moreover, there are indirect costs of STIs including lost productivity, absence of work/school as well as reduced well-being, and the economic impact on the support systems (Kennedy et al., 2022). The indirect economic burden of STIs like chlamydia or gonorrhea is higher than the costs of medical treatment (Kumar & Chesson, 2021).

Another negative outcome and factor of lack of sexual health is sexual violence (Grose et al., 2021). Gender-based violence, including sexual violence, is one of the least tackled social issues although it is one of the most frequent human rights violations (Heise et al., 2002). For instance, about 35,6% of women worldwide have experienced sexual violence. Further, sexual violence is a risk factor for various sexual and reproductive health conditions influencing physical and mental health (Borumandnia et al.,2020). Sexual violence is impacting the financial well-being of individuals and communities as well since the caused trauma impacts productivity, performance, the cost of health services, justice systems, and social support for the survivors (Loya, 2015). In a systematic review global differences in the prevalence of sexual assault are discussed (Dworkin et al., 2021). Accordingly, the calculated past-year prevalence in the African region for women ranged

between 4.6%-36.3%, for men 9.4%, and for LBGT between 14.8%-18.2%. In contrast calculated past-year prevalence in the European region for women ranged between 0.6%-1.9%, for men 0.5%-0.7%, and for LBGT 1.5%-54.1%. 54.1% of LBGT in Europe with a lifetime sexual assault history were assaulted in the past year (Dworkin et al., 2021).

Lastly, sexual health-related issues are a concern for the sustainable development of human societies. (Sustainable Development Goals, 2015). This study aims to gather more information concerning 3 of the 17 sustainable goals: Goal 3: Good Health and Well-Being, Goal 4: Quality Education, and Goal 5: Gender Equality. Specifically, we aimed at offering insights on the perceived influence of sexual education on SHWB outcomes in the context of Germany and South Africa since in both countries differences in STI rates, HIV cases, and prevalence of sexual violence are reported.

1.2. Sexual education as a knowledge tool

Sexual education became a worldwide concern since the emergence of HIV/AIDS in the 1980s to prevent negative health outcomes for the population (Rosen et al., 2004). Over 100 countries committed to creating educational programs for public health promotion (Rosen et al., 2004).

A lack of sexual knowledge delivery for the general population and health professionals is reported (Warner et al., 2018). For instance, laypeople lack crucial knowledge about sexual health, and medical students in the US reported not feeling comfortable and confident addressing sexual health challenges due to a lack of sexual information in their professional training (Warner et al., 2018). A lack of sexual knowledge can result in risky sexual behavior affecting the physical, mental, and social well-being of individuals (Warzecha, 2019). Hence, to ensure sexual health in our societies, knowledge is essential. It is fundamental to have a basic understanding not only of anatomy, reproduction, and maturity but rather also focus on communication and delivery of social norms promoting sexual health behavior (Schwatzendruber & Zenilman, 2010).

In comprehensive sexual education, sexuality is viewed holistically and in the context of emotional and social development (Herat et al., 2018). The United Nations Educational, Scientific and Cultural Organization (UNESCO) and other institutions of the United Nations (2018) defined sexual education as an age-appropriate, culturally relevant way of teaching about sex and

relationships. Accordingly, comprehensive sexual education aims to deliver not only knowledge but further attitudes and skills to young people to enable them to determine and enjoy their sexuality (Schwatzendruber & Zenilman, 2010).

Lastly, sexual education can be understood as a knowledge tool. For instance, a study conducted by Roth et al. (2023) in a rural area of the USA tested a virtual sexual education tool and its impact on reproductive health knowledge and self-efficacy amongst adolescent girls. The results showed an increase in reproductive health knowledge and some participants reported higher self-efficacy related to birth control, STI testing, and the recognition of unhealthy relationship patterns.

1.2.1. Different Sources of Sexual Education

People receive sexual education through different sources. For instance, Scharmanski and Hessling (2022) asked German teenagers to indicate how they typically receive knowledge about sex. Besides the education they received at schools, participants indicated several other sources of knowledge, including conversations with parents, peers, teachers, or sexual partners, the internet, magazines, own experiences, books, movies, free informational brochures, and presentations about sex. This clearly shows that people gain knowledge not only in formal sources of education (either more traditional ones such as mandatory school or more modern ones such as University) but also in informal sources of education.

These can also include more traditional sources, including having conversations with peers, sexual partners, and even their parents or caretakers (Pop & Rusu, 2015). Parents are seen as a key pillar to improve sexual literacy for their children via the delivery of comprehensive sexual education (Binti Abdullah et al., 2020). However, the results of a study by Binti-Abdullah et al. (2020) in Malaysia suggested adversity towards starting the conversation with their children since the topic is seen as sensitive and their lack of sexual knowledge. Hence, the researchers stated that it is also important to offer comprehensive sexual education to parents to improve the sexual knowledge of children (Binti Abdullah et al., 2020).

More recently, we can also identify modern sources of informal sexual education, driven by trends of digitalization in the last years. Specifically, the use of webpages and social media as mediums of sexual education has become relevant (Oosterhoff et al., 2016).

Access to pornography increased over the last years globally. Accordingly, the use of pornography as a sexual educational tool might further increase. Therefore, experts advocated for the implementation of meaningful sexual education with the promotion of healthy sexual relationships (Rowland & Uribe, 2020). Particularly in the case of pornography, research suggests a complex association between pornography and SHWB with diverse possibilities and threats to sexual health (e.g., Ramlagun, 2012; Wright et al., 2019). Pornography can educate and create the possibility to experience oneself sexually and start a conversation about sexual pleasure (Albury, 2014). However, there is also evidence highlighting potential problems with using pornography as the main source of sexual education. McKee and colleagues (2021) conducted a mixed-method systematic review investigating the relationship between consensual sexual practice and the consumption of pornography. In this review study, it became clear that there is no agreement in the literature if pornography has an impact on consensual sexual activity Moreover, the correlation between the consumption of pornography and a less frequent use of condoms is mediated by the conception that pornography is a source of sexual information (Wright et al., 2018). Hence, the understanding of pornography as a source of sexual information increased the correlation between the consumption of pornography and less frequency of condom use. Further, a study compared pornography use between Polish and German university students. Findings illustrated associations between the sociocultural background, in particular religiosity, and the consumption of pornography (Martyniuk et al., 2015). In short, the topic of the use of pornography as a sexual educational tool is complex. Generally, starting the conversation about pornography as an important source of sexual knowledge can be a resource for more expansive and ethical sexual education (Goldstein, 2019). Additionally, other forms of media as informal modern sexual education sources are used to educate oneself about sex like the Netflix TV show “Sex Education” or books like “The Sex Lives Of African Women” by Nana Darkoa Sekyiamah. Likewise, social media plays an important role in self-directed sexual education (Manduley et al., 2018). For instance, a study by Döring (2017) showed that besides the school setting, conversations with parents or peers as well as the consultancy of medical professionals, mass media like magazines and nowadays the internet are used. According to the author, the new accessibility of information came with danger as the representation of sex and sexuality in the media is not controlled and might be problematic or of discriminative nature.

In sum, receiving sexual education through diverse sources and channels enhances not only sexual empowerment, literacy, and decision-making, but moreover promotes people to be more attentive and respectful of their sexual partners (Grose et al., 2014).

The way sexual education is approached around the globe is different. For instance, sexual education through school is compulsory in some countries including Germany and South Africa (Scharmanski &Hessling, 2021; Department of Basic Education, 2011). However, in other contexts for instance, in Spain sexual education in the school context is not obligated by law and remains optional (Cunha-Oliveira et al., 2021). There are further cultural differences in the approach towards topics related to sex as sex can be also understood as a socially constructed concept (Parker, 2009). For instance, in Namibia having a conversation about SHWB as a parent with their child used to be seen as taboo. However, nowadays conversations around menstruation, pregnancy, and HIV/AIDS are held especially by mothers (Nambami & Mufune, 2011). This highlighted the impact social norms and cultural values have on education about sexuality. A case study conducted in rural Zambia about the delivery of comprehensive sexual education in mid-level schools illustrated the importance of compatibility of the curricula and the local norms to ensure comprehensive sexual knowledge amongst the students (Zulu et al., 2019).

This study focused on the German and South African contexts which will be discussed in the next chapters including sexual education and sexual health and well-being in both countries to better understand the context of the conducted research.

1.3. The German Context

1.3.1. Sexual Education

The history of sexual education in the German context is marked by ideological changes and conflicts. The approaches towards the delivery of sexual knowledge for the public evolved between repression, reforming, and emancipation. In the 2000s, sexual education in Germany became an independent science that departed from disciplines such as theology, medicine, psychology, and sociology (Sielert, 2006). Formal sexual education in all types of schools is mandatory as part of basic education (Scharmanski &Hessling, 2021). Accordingly, school is one of the main sources of sexual knowledge for children and teenagers (Hilgers et al., 2004). In the German context, education is decentralized implicating that each constitutional state has its own

Education Act. This results in differences in the delivery of sexual education as it depends on which of the 16 constitutional state people live in (Badura, 2018). The former division of Germany into West and East Germany as two separate states with different economic systems, educational systems, and ideologies also impacted education in particular sexual education (Scharmanski & Hessling, 2022).

A study conducted in 2019 by the Bundeszentale für gesundheitliche Aufklärung (or BZgA; the German Federal Center for health education) showed that even though the impact and delivery of school-based sexual education have reduced over the past years, it remained the main source of sexual knowledge. Indeed, Scharmanski and Hessling (2022) showed that 69% of teenagers aged between 14-17 years old stated that their comprehension of topics related to sexuality and anticonception originates from classes in the school context. However, a decline in the impact of school-based sexual education over the last years was visible in the data. In contrast, the use of the internet to gather insights about sex-related topics is on the rise (59%) and conversations about sex (68%) was seen as valuable source as well.

The BZgA has further gathered information about the main topics discussed in German schools. Accordingly, the data showed that a biological approach to sexuality prevailed in school-based sexual education, as the main topics discussed in class were anatomy, sexual development, menstruation, anticonception, and STIs (Scharmanski & Hessling, 2022). Accordingly, it becomes prevalent that sexual pleasure is often neglected in SHWB sexual education in the school context with this given example from the German context.

The first representative study about sexuality in Germany the GeSiD (Gesundheit und Sexualität in Deutschland, eng. Health and Sexuality in Germany) recently published the results. A sample of 4955 German people aged between 18 and 75 years was collected between October 2018 till September 2019. The collected dataset was used for several studies and analyses (e.g., Štulhofer et al., 2022; Ludwig et al., 2023). For example, Štulhofer and colleagues (2022) investigated the self-perceived impact of pornography use on their personal sex life. Overall, most participants (61.7%) stated that there was no impact of their consumption of pornography on their sexual life. Still, women reported more positive impacts of the use of pornography on their sexual life than men. Men on the other hand expressed more negative or mixed impacts of their

consumption of pornography use on their sexual life. The authors explained the gender effect with the media portrayal of men experiencing addiction to pornography or developing sexual dysfunction due to their consumption of pornography. Research suggested that these media narratives can lead men to self-label themselves as pornography addicts and further impact the perspective of mental health professionals about the use of pornography in men (e.g., Cantor et al., 2013; Klein et al., 2019; Ley et al., 2014). Additionally, the researchers detected a significant association between the negative self-perceived impact of their pornography use and their religious upbringing (Štulhofer et al., 2022).

1.3.2. Sexual Health and Well-being

In this section findings regarding the SHWB are briefly summarized to better understand the German context. Germany faces SHWB challenges including the prevalence of STIs, sexual violence, and homophobia including hate crime (Haritaworn, 2010; Hellmann et al., 2018; Zheng et al., 2022). The GeSiD dataset was used to investigate public attitudes toward sexual practices including extramarital sex, abortion, same-sex sexual activities, sex work, promiscuity, and sex without love (Ludwig et al., 2023). Differences in attitudes depending on gender, educational background, culture, and religion were discovered (Ludwig et al. 2023). For instance, more men dismissed abortion and same-sex sexual activities. On the one hand, religious devoutness and Muslim faith were correlated with less acceptance of the mentioned sexual practices, on the other hand, higher education was associated with more acceptance (Ludwig et al., 2023). Consequently, the authors advocated for the need to focus on differences concerning sexuality-related values and norms as well as acculturation processes to deliver culturally sensitive and comprehensive sexual education (Ludwig et al., 2023).

Based on the GeSiD dataset, the authors found that the knowledge about STIs was not sufficient in the general German sample. However, people in Germany reported more information about HIV/AIDS than about STIs (Matthiessen et al., 2021). Nevertheless, people from sexual minority groups, as well as people who already tested positive for STIs, had more understanding of STIs. Whereas people from a low educational background, low socioeconomic status, or with a migration background had less awareness of STIs (Matthiessen et al., 2021).

Dekker and colleagues (2020) have assessed sexual satisfaction based on the dataset of the GeSiD (Gesundheit und Sexualität in Deutschland, eng. Health and Sexuality in Germany). The

authors found a positive association between sexual activity frequency and sexual satisfaction, even though just the frequency of sexual activity cannot be seen as a main factor for more sexual satisfaction. Another analysis of the dataset focusing on sexual pleasure has shown that women in the general German population stated less sexual pleasure than men (Klein et al., 2022). However, sexual satisfaction was connected to more diverse sexual health outcomes in women than in men (Klein et al., 2022). A significant association between physical, mental, and sexual health in the dataset was discovered, which illustrated the importance of a holistic view of health with all its aspects and not a mere focus on negative sexual health outcomes (Dekker et al., 2020).

Cerwenka and colleagues (2022) investigated factors associated with condomless sex in Germany. Results of their analysis demonstrated that condomless sex was higher in participants older than 35, engaged in long-term relationships or at the beginning of romantic relationships than in one-night stands. Moreover, the data of the study suggested that sexual history as well as communication matters. For instance, talking about condom use or a first sexual encounter with the use of protection like condoms was linked to higher condom use in later sex life. This study suggested that the non-use of condoms was widespread in the German context and connected to the risk for negative SHWB outcomes.

Further, sexual violence remained a societal challenge in German society (Hellman et al., 2018). For instance, in 2016 11,282 cases of rape and sexual assault were reported to the police, which was almost 31 reported cases of sexual violence per day (*Rape and sexual assault cases recorded by German police 2010-2021 | Statista*, 2022). However, it can be assumed that the actual number was even higher since not every survivor of sexual violence files a criminal complaint. In 2011 researchers estimated a lifetime prevalence of sexual violence around 5.4% for young women aged between 21 and 40 (Hellman et al., 2018).

1.4. The South African Context

1.4.1. Sexual Education

Sexual Education in South Africa is delivered through Life Orientation (LO) classes in primary and secondary schools. These classes aim for holistic learner development (Department of Basic Education, 2011). Accordingly, LO lessons supply information about safer sex practices, reproductive justice, and health and sexual diversity (Mayeza & Vincent, 2019).

In South Africa, comprehensive sexual education is part of the national wide curriculum, however, research has found several shortcomings in the delivery (e.g., Shefer et al., 2015). For instance, besides the objectives of a comprehensive approach to educating kids about sex, in practice sexual abstinence is thought in schools to tackle unplanned pregnancies and the rates of HIV and other STIs (Mayeza & Vincent, 2019). This highlights the discrepancy between the curricula objectives and the actual delivery of sexual education in schools (e.g., Shefer et al., 2015). Other research showed a predominantly sex-negative approach to teaching about sex causing a view of sex as dangerous and its relation to diseases (Macleod, 2009). However, sexual educational programs throughout the schools remained a key role in the promotion of safer, non-violent, and equitable sexual practices (Shefer & Macleod, 2015).

In line with that, compulsory sexual education in school is seen as a cornerstone in the fight against the HIV crisis in South Africa (Francis, 2010). However, it was recommended that sexual education in the school context should include desire and pleasure content, as well as create safe spaces to discuss personal sexual experiences (Francis, 2010). In South Africa, the focus is merely on negative outcomes with a biological and medical approach (Giami et al., 2006). Further, the influence of social and cultural norms regarding gender roles and sex should not be underestimated. Research in the African context has shown that young females behave more reserved in sexual educational classes resulting in less engagement in class discussion (Pattman & Chege, 2003).

Outside the school context, conversation with parents plays an important part in adolescents gaining sexual knowledge and is a protective factor for SHWB. Nevertheless, there are several factors impacting effective communication even if caretakers and children have intentions to talk (Motsomi et al., 2016). Firstly, lack of knowledge, cultural or religious norms as well as gender differences hinder open communication about sex (Motsomi et al., 2016). Moreover, discussions are mostly on a same-sex basis, authoritarian and unidirectional. Shame and embarrassment still play a role when children try to ask parents for sexual information (Motsomi et al., 2016). There is further a misconception that talking openly about sex makes children experiment more sexually and that adolescents are too young to understand issues related to SRH (Motsomi et al., 2016).

Another South African study by Ramlagun (2012) showed that pornography is seen as an educational tool when sexual education is absent or limited and gives sexual agency and desires to

girls. And yet, qualitative evidence showed that pornography can be seen as both democratizing and oppressive at the same time. Specifically, pornography could empower young people to learn about sexual desire with pleasurable capacities in the context where access to sexual education is absent or limited. On the other hand, Ramlagun (2012) mentioned that talking about pornography in formal sexual education should be considered since it could increase the taboo around pornography use and its destructive power in promoting unrealistic ideals about sexual activity.

Finally, the impact of South Africa's history of colonization, apartheid, and Christianity on formal sexual education cannot be neglected as it caused the normalization of heterosexuality, gender, and racial inequalities with strong implications of heteronormativity and white supremacy (Bhana et al., 2019). In summary, Macleod (2016) describes that sexuality in the South African context is seen as a part of suffering, as heteronormative, and as gendered, and therefore the diverse needs of the youth in South Africa could not be sufficiently addressed. Consequently, sex is seen as something dangerous and damaging with men being the predators and women the victims.

1.4.2. Sexual Health and Well-being

In this section findings regarding the SHWB are briefly summarized to better understand the South African context. South African society endures diverse challenges related to SHWB. Gender-based violence, sexual violence, homophobia, unwanted pregnancies, and HIV are significant threats to public health and well-being (Willian et al., 2019). The HIV/AIDS prevalence as well as the rates of sexual violence are among the highest in South Africa, globally (Klazinga et al., 2020).

In the South African context, the several intersections between sexual violence and the risk for infection of HIV/AIDS are clear (Kistner, 2003). Firstly, forced sexual activity directly increases the risk of infection. Secondly, in indirect ways violence or trauma impacts the likelihood to discuss safer sex practices with the sexual partners. Thirdly, prior child sexual abuse leads to more sexual risky behavior. Additionally, the lack of accessibility to justice or health care can further result in higher HIV/AIDS rates (Kistner, 2003). Lastly, talking about one's status may lead to exposure to violence (Kistner, 2003). In general, the widespread prevalence of gender-based violence, specifically sexual violence in South Africa impacts the life of women negatively with less health, more economic constraints, and even death (Enaifoghe et al., 2021). A contextual

analysis emphasizes that female youth exposure to sexual violence is a major risk factor for HIV infection (Speizer et al., 2009).

South Africa faces the highest prevalence of STIs worldwide. Accordingly, an STI incidence of 15 per 100 people a year and a prevalence of 20% was estimated (Wand et al., 2020). The use of condoms or other safer sex practices are ways to prevent STIs and HIV and tackle the complex SHWB challenges in South Africa due to diverse factors including behavioral, historical, and structural aspects (Beksinska et al., 2012). The South African government implemented a national wide program to increase accessibility and education about condom use. However, the enforcement of the program faced challenges, schools decided to not give away free condoms due to the belief that it will encourage students to be more sexually active (Beksinka et al. 2012). But all in all, there is an increase in condom use and acceptance as well as awareness of the importance of using condoms. Data has shown the positive impact of education for instance the use of condoms is higher for educated women (Beksinka et al., 2012). Nevertheless, experts suggest a more holistic approach to increase condom use to challenge all barriers regarding condom use (Beksinka et al., 2012).

Alongside the use of condoms, communication about sex and the use of protection is crucial. Hence, a comparative study in India and South Africa indicated the significance of advanced verbal communication skills to prevent HIV/AIDS (Lambert & Wood, 2005) Another study conducted in a South African township has discovered a link between STI testing and communication about sex and safer sex practices. Results showed that providing free testing to the whole population holds the possibility to further start the conversation of SHWB amongst sexually active people and consequently decrease SHWB risks further (Scott-Sheldon et al., 2011).

South Africa has 11 official languages due the cultural diversity in the society (Beukes, 2004). Educating and talking about sex is therefore influenced by the language chosen in the South African context as sexual communication triggers linguistic taboos as well as cultural norms related to the language spoken. Accordingly, experts suggest studying ethnography to decide the appropriate language to use in educational programs to prevent HIV infections (Cain et al., 2010). In line with that, results of a qualitative study with Xhosa men and women have shown that teaching about safer sex practices in a non-mother tongue is more suitable as it enables open communication

with less cultural connotations activating gender roles (Cain et al., 2010). Notwithstanding the importance of prevention of negative SHWB outcomes, it is further essential to further look at positive outcomes such as pleasure and sexual satisfaction. However, there are not many studies in the African context focusing on sexual satisfaction (Cranney, 2017). Nevertheless, links between education, income, and being partnered with sexual life satisfaction were found. Religiosity as well as the burden of HIV/AIDS were not correlated to sexual satisfaction. All in all, South African residents were among the top one-third of countries in Africa regarding average sex life satisfaction (Cranney, 2017).

The given literature review has given background about sexual education and sexual health in both countries of research interest and how sexual education can contribute through knowledge delivery to sexual health and well-being outcomes. In both countries comprehensive sexual education is mandatory, but people further gather information about sex through different sources. We focused on three aspects of the conceptualization of SHWB by Mitchell et al. (2021), that is, sexual violence prevention, prevention, and management of STIs, and sexual pleasure (person-related, event-related). We focused on how SHWB outcomes including condom use, STI testing, sexual health communication, sexual satisfaction, and consent are related to sexual education and its perceived influence.

1.5. The Present Study

In this present study, sexual education sources were divided into four categories: formal/informal and traditional/modern. Formal traditional sources represented sexual education through school. Formal modern sources were conceptualized as sexual education courses in higher education outside the former school context. Informal traditional sources represented educative conversations with family, friends, sexual partners, and teachers. Finally, modern informal sources were used as categories to summarize sexual education through movies/TV shows, online pornography, online content, and social media. This organization and categorization of sexual education sources enabled us to differentiate between different sources of information and not only differentiate about content but also the medium of education to undress the perceived influence of distinct sexual education sources.

This research focused on three main topics of sexual education: Sexual and reproductive health (e.g., contraceptive use and access), sexual pleasure and difficulties (e.g., ways to achieve pleasure and overcome difficulties in sex), and sexual abuse (e.g., non-consented forms of sexual activity).

1.5.1. Research Interest

With this study, we wanted to understand how people perceive the influence of the different sources of sexual education with its different topics on their actual sex life and the relation to SHWB outcomes. Another research interest of the study was to understand better the differences between Germany and South Africa regarding the SHWB outcomes, moreover how the differences in the correlation between the perceived influence of sexual educational sources and the SHWB outcomes varied. For instance, a review article highlighted structural and contextual drivers related to risky sexual behavior, and to higher vulnerability to negative SHWB outcomes (Wamoyi et al., 2014). Further, a critical review of sexual education discussed the impact of the socio-historical context with its relevant values toward approaches to education about sex. Consequently, differences in the correlation between the perceived influence of sexual education sources and the SHWB outcomes can be expected as well as differences in the mean scores of the perceived influence of sexual education (Iyer & Aggleton, 2015).

1.5.2. Research Expectations

Based on the literature review, we expected that the formal traditional sexual education sources and their perceived influence were related positively to safer sex practices in condom use, sexual health communication and STI testing as literature had shown the predominant biological and medical approach to sexuality in sexual education in schools (e.g., Parker et al., 2009). Moreover, was expected that internal and external consent was positively associated with the perceived influence of formal traditional sexual educational sources as researchers suggested sexual education in schools can be used as a primary prevention strategy against sexual violence (Schneider & Hirsch, 2020). Further, the representative study about youth sexuality in Germany illustrated that besides school, conversations were a major source of gaining sexual knowledge. Therefore, we hypothesized that the perceived influence of informal traditional sources (i.e., conversations) was also positively correlated with sexual health outcomes including safer sex

practices (e.g., Scharmanski & Hessling, 2022). Lastly, it can be assumed that informal modern sources are positively related to sexual health outcomes like sexual satisfaction as studies have already suggested that people use the internet or consume pornography to gain ownership of their sexuality (e.g., Ramlagun, 2012).

2. Methods

2.1. Participants

In total, 1404 people began the survey but there was a high dropout rate due to its length (59.4%). Of the 570 participants who finished the survey, 37 were removed because they did not receive their education in Germany or South Africa. We used attention checks throughout the survey to filter out participants based on commonly used practices in the literature (e.g., Berinsky et al.,2014; Curran, 2016). Firstly, two items were implemented as attention checks and requested participants to choose the specific answer option for that item (e.g., "*Please select the option "3". This is not a trick question.").* Moreover, participants were asked to self-assess how attentive they completed the questionnaire ("*How much attention did you pay to this questionnaire while you were completing it*?"). Answers were selected on a 4-point rating scale (1 = *No attention,* 2 = *Very little attention,* 3 = *Moderate amount of attention,* 4 = *Very close attention).* In the end, the participants were asked if they would like to keep their answers for analysis or not. Participants who failed at least one of the two attention checks (n = 71), who indicated having paid very little or no attention to the survey (n = 17), and those who wanted to withdraw their data (n = 19) were excluded from the analyses. The final sample included 426 participants from Germany (n = 284) and South Africa (n =142). Overall, most participants identified as women (61,3%), identified as heterosexual (77.5%), and identified as White (72,3%), received over 12 years of education (52.6%), lived in urban areas (60.1%), had a middle financial income (38.9%), were employed (36.2%), and were engaged in a romantic relationship (67.6%). A detailed description of the demographics can be found in Table 1.

Table 1

Demographic information

	Overall sample (*N* = 426)	*Germany* (*n* = 284)	*South Africa* (*n* = 142)
Gender			
Women	261 (61.3%)	160(56.3%)	101(71.1%
Men	153 (35.9%)	116(40,8%)	37(26.1%)
Non-binary	12 (1.5%)	8(2.8%)	4(2.8%)
Sexual Orientation			
Heterosexual	330 (77.5%)	225(79.2%)	107(75.3%)
Non heterosexual	116 (22.5%)	59(20.8%)	35(34.7%)
Ethnicity			
White	310(723%)	264(92.3%)	46(32.4%)
Black	87(20.4%)	4(1.1%)	84(59.2%)
"Colored"	7(1.6%)	0	7(4.9%)
Asian	9(2.1%)	4(1.4%)	5(3.5%)
Other	11(2.6%)	11(5.2%)	0
Education			
≤ 12 years	224(52.6%)	124(43.7%)	100(70.4%)
> 12 years	202(47.4%)	160(56.3%)	42(29.6%)
Residence			
Rural Areas	58(13.6%)	51(18%)	7(4.9%)
Urban Areas	256(60.1%)	137(48.2%)	119(83.8%)
Other	112(26.3%)	96(33.8%)	16(11.3%)
Financial Income			
Low	96(22.5%)	38(13.4%)	58(40.8%)
Middle	166(38.9%)	112(39.4%)	54(38%)
High	125(29.3%)	113(39.7%)	12(8.5%)
Professional Status			
Student	81 (19%)	25(8.8%)	56(39.4%)
Employed	154(36.2%)	83(29.2%)	71(50%)
Unemployed	146(34.3%)	137(48.2%)	9(6.3%)
Other	45(10.5%)	39(13.8%)	6(4.3%)
Relationship status			
Without a romantic relationship	113(26.5%)	80(28.17%)	54(38.1%)
In a romantic relationship	288(67.6%)	201(70.77%)	88(61.9%)
	M (*SD*)	*M(SD)*	*M(SD)*
Age (years)	28,82(6,86)	28,66(6,88)	29,14(6,84)

2.2. Measures

We translated the scales into German using the cross-cultural commonly utilized method of back-back translation of the scales to ensure the quality criteria of the scales in the different languages (Brislin, 1970). To assess the quality of this measure and the translation in our sample, a confirmatory factor analysis (CFA) with robust maximum likelihood estimation (Yuan & Bentler, 2000) was conducted using JASP (JASP Team, 2023). Further, we calculated McDonald's Omega to assess the reliability of the used scales.

2.2.1 Perceived Influence of Sexual Education Sources

Participants were asked how much each topic (SRH, sexual pleasure, and sexual abuse) in each educational source (formal/informal, and traditional/modern) influenced how they are thinking and behaving in sex nowadays.

For formal traditional sexual education sources, participants were asked if the topics were addressed in class as part of their mandatory school education and about their influence (e.g., *"Of the sexual education topics, presented below in the table, please indicate which were addressed in classes and to what extent these topics influenced how you think and behave in sex nowadays*".) Further participants had to indicate in which school grade (*1st to 4th grade,5th and 6th grade, 7th to 9th grade, and 10th to 12th grade*) which topic was talked about and rated their influence on a 7-point scale (*1=it was addressed, but it had no influence,7=it was addressed, and it had a lot of influence*).

Similarly, for formal modern sexual education, the same rating 7-point scale was used to assess the perceived influence of each topic from other sexual education courses outside compulsory schooling (e.g., adult courses, postgraduate courses, in higher education).

For informal traditional sexual education sources questions about the perceived impact of conversations about sex and sexuality with close people (e.g., parents, friends, romantic partners, casual partners, and teachers) were presented. Accordingly, participants had to point out with which people they had conversations about SRH, sexual pleasure, or sexual abuse and had to point out the perceived influence (*1=there were conversations about sex and sexuality, but it had no influence,7=they were conversations about sex and sexuality, and it had a lot of influence)* on their SHWB.

Likewise, for informal modern sexual education sources (TV shows, pornography, social media, web pages) the perceived influence regarding the three topics of interest was assessed on a 7-point scale (1=*I got the information, but it had no impact, 7= I got information and it had a lot of influence*).

All items for each topic and source were mean aggregated and a higher score indicated a higher perceived influence of that source and topic of sexual education on their sexual life. Hence, we created 12 new variables representing the four different educational sources (formal/informal, traditional/modern) with their three different topics (SRH, pleasure, and sexual abuse).

2.2.2. Condom Use

Participants were asked to indicate their condom use frequency with their sexual partners in the past six months. Specifically, participants indicated how often they had vaginal sex ("*How often did you have penetrative vaginal sex without a condom?"*), anal sex ("*How often did you have penetrative anal sex without using a condom?"*), and oral sex *("How often did you have oral sex without using a condom?"*). Responses to each item were given on a 7-point rating scale (*1=Never to 7=Every time I have sex*). Responses were reverse-scored and mean-aggregated, such that a higher score indicated more condom use. Considering the entire sample, analyses using the McDonald's omega showed the following calculated reliability for the computed variable of condom use (ω = .63; 95% CI [.56;.69]).

2.2.3 Frequency of STI testing

One question was asked about the frequency of STIs testing (e.g., HIV, chlamydia, gonorrhea, syphilis)" (1= *I have never been tested,* 2 = *Less than once a year,* 3 = *About once a year,* 4=*About twice a year,* 5 = *About once a month, 6=More than once a month).* A higher score indicated a higher frequency of STI testing.

2.2.4 Health Protective Sexual Communication Scale

We used the Health Protective Sexual Communication Scale (Cataina et al., 2020) to assess the frequency to which participants discuss health-protective topics with new sexual partners (e.g., *„Asked a new sex partner about the number of past sex partners they had"*). Responses to each of the 10 items were given on a 4-point rating scale (*1=Never, 4= Always*) (e.g., *„How often have you asked a new sex partner how they felt about using condoms before you had intercourse?*"). Total

scores were computed by mean-aggregation of the responses from all items. A higher score indicated more health-protective sexual communication. Results showed the following fit: $\chi 2$ (35) = 372.00 comparative fit index (CFI) = .87, Tucker–Lewis index (TLI) = .83, standardized root mean square residual (SMSR) = .12 and root mean square error of approximation (RMSEA) = .15 [.14, .17] according to the established standards in the literature for fit-indexes (Bentler, 1990; Browne & Cudeck, 1989; Byrne, 2012). Considering the entire sample, analyses using McDonald's omega showed good reliability for the health-protective sexual communication scale (ω= .75; 95% CI [.71;.78]).

2.2.5. Internal and External Consent Scale

The internal and external consent scale (Jozkowski et al.,2014) was used to operationalize consent. This measurement consists of two factors with each of five subscales. Internal Consent was constructed with the following five subscales: physical response, safety/comfort, arousal, consent/want, readiness. The scale of external consent consists of the subsequently five subscales: direct nonverbal behaviors, passive behaviors, communication/initiator behavior, borderline pressure, and no response signals. To prevent participant fatigue, the two items with the highest factor loading on each subscale of internal and external consent were selected. Further, the items were adapted to measure how often the participants experience internal consent feelings (10 items, e.g., "*During my typical sexual behaviors, I feel secure*", response scale: 1 = *I never have this experience* to 4 = *I always have this experience)* or engage in external consent communication(10 items, e.g., "*In sex, I typically initiate behavior and check to see if my partner reciprocate*"; response scale: 1 = *I never behave like this* to 4= *I always behave like this).* The items of both factors internal and external consent were mean aggregated respectively. Higher ratings stating more experience of internal and external consent. The subscale of external consent was reduced from 10 items to 9 items since the factor loading of the item *("I did not say anything that I was willing to engage in sexual activity/sexual intercourse")* was not significantly associated to the factor external consent with an estimate of -0.05 (p = .081). Results of the final version showed a very good fit: , $\chi 2$ (151) = 1062.79, comparative fit index (CFI) = .92, Tucker–Lewis index (TLI) = .91, standardized root mean square residual (SMSR) = .01 and root mean square error of approximation (RMSEA) = .12 [.11, .13] according to the established standards in the literature for fit-indexes (Bentler, 1990; Browne & Cudeck, 1989; Byrne, 2012). Considering the entire sample, analyses using the McDonald's omega

showed good reliability for the internal consent subscale (ω= .75; 95% CI [.71; .78]) and a moderate reliability for the external consent subscale (ω = .64; 95% CI [.58;.70]).

2.2.6. New Sexual Satisfaction Scale

We used the short form of the New Sexual Satisfaction Scale (Štulhofer et al., 2010) to assess participants' satisfaction with different aspects of their sex life. Six items assessed ego-centered sexual satisfaction (e.g., "*The quality of my orgasms*"), and six items assessed activity-centered sexual satisfaction (e.g., *"The variety of my sexual activities"*). Answers to each item were given on a 5-point rating scale (1 = *Not at all satisfied* to 5 = *Extremely satisfied*). Items within each subscale were mean aggregated, with higher scores indicating more sexual satisfaction. Results showed a very good fit: $\chi 2$ (53) = 172.80, comparative fit index (CFI) = .99, Tucker–Lewis index (TLI) = .99, standardized root mean square residual (SMSR) = .05, and root mean square error of approximation (RMSEA) = .07 [.06, .09] according to the established standards in the literature for fit-indexes (Bentler, 1990; Browne & Cudeck, 1989; Byrne, 2012). Considering the entire sample, analyses using the McDonald's omega showed good reliability for the ego-centered subscale (ω= .87; 95% CI [.85; .89]) and for the activity-centered subscale (ω = .83; 95% CI [.79;.85].

2.3. Procedures

The study was approved by the Ethics Committee of Iscte-Instituto Universitário de Lisboa (#130/2022). The study was conducted as an online survey using the survey platform Qualtrics. Participants were recruited using social media, mailing lists, and through the Clickworker platform, in which 200 participants received 1 USD upon survey completion. People could take part in the study if they were between 18-45 years old, engaged in sexual activity (oral, anal, or vaginal sex), and were residents in either Germany or South Africa or received former education there. Prospective participants were asked to read a Participant Information Sheet that included informed consent. Participants were first presented with standard sociodemographic questions (e.g., age, gender), followed by the remaining measures. This was a non-mandatory survey, such that participants could choose to leave questions unanswered and still complete the survey. At the end of the study, participants were given a debriefing form that included a detailed overview of the study goals, as well as detailed information about websites and contacts of sexual health and well-

being-related institutions (e.g., information on the possibility to get tested for STIs), and organizations providing support in case of sexual violence (i.e., helplines).

2.3.1. Analytical Plan

Independent *t-tests* were computed to assess differences of means between countries regarding the perceived influence of different sexual educational sources and topics and to further understand mean differences between SHWB outcomes including condom use, STI testing, sexual health communication, sexual satisfaction, and sexual consent. Second, we computed correlations between the perceived influence of each sexual education source and each topic and all SHWB outcomes. These correlations were computed for the overall sample, as well as for each country sample separately. In the last step, significant correlations in the two country samples were compared to investigate if there is a significant difference in the effect size of the significant correlations in the two country samples (Lenhard & Lenhard, 2014).

3. Results

3.1. Descriptive Statistics

Descriptive statistics for the total sample, each country separately, and country comparisons are summarized in Table 2

Table 2

Descriptive Statistics and Group Comparison

	Total sample	German sample	South African sample	Group comparisons	
	M (*SD*)	*M* (*SD*)	*M* (*SD*)	*t*	Cohen's *d*
Perceived Influence					
Formal traditional sources					
SRH	2.41 (1.18)	2.42 (1.16)	2.41 (1.22)	0.07	0.01
Pleasure	1.74 (1.34)	1.67 (1.28)	1.89 (1.47)	-1.48	-0.16
Sexual violence	1.90 (1.27)	1.57 (0.98)	2.54 (1.52)	-8.01***	-0.82
Formal modern sources					
SRH	1.26 (0.70)	1.17 (0.52)	1.44 (0.96)	-3.78***	-0.39
Pleasure	3.91 (2.12)	3.78 (1.90)	4.08 (1.45)	-0.68	-0.15
Sexual violence	1.28 (0.72)	1.19 (0.52)	1.47 (1.66)	-3.89***	-0.40
Informal traditional sources	3.35 (1.34)	3.14 (1.27)	3.78 (1.45)	-4.74***	-0.49
SRH	3.85 (1.48)	3.71 (1.37)	4.13 (1.66)	-2.71**	-0.28
Pleasure	2.81 (1.51)	2.39 (1.26)	3.67(1.62)	-8.96***	-0.92
Sexual violence					

Informal modern sources					
SRH	2.25 (1.27)	2.06 (1.14)	2.65 (1.42)	-4.62***	-0.48
Pleasure	3.69 (1.77)	3.33 (1.63)	4.37 (1.84)	-5.66***	-0.61
Sexual violence	2.31 (1.34)	2.03 (1.10)	2.91 (1.57)	-6.70***	-0.69
SHWB outcomes					
Condom use	4.36 (1.73)	4.39 (1.64)	4.32 (1.92)	0.37	0.04
STI testing	2.21 (1.21)	1.92 (0.98)	2.623 (1.10)	-6.66***	-0.67
Sexual communication	2.37 (0.60)	2.28 (0.52)	2.54 (0.69)	-4.46***	-0.46
Internal consent	3.12 (0.48)	3.08 (0.47)	3.20 (0.49)	-2.23*	-0.24
External consent	2.98 (0.46)	2.91 (0.43)	3.11 (0.48)	-4.22***	-0.43
Sexual satisfaction (Ego)	3.68 (0.91)	3.67 (0.82)	3.71 (1.08)	-0.44	-0.05
Sexual satisfaction (Activity)	3.55 (0.85)	3.54 (0.76)	3.57 (1.03)	-0.33	-0.03

Note. SRH = Sexual and Reproductive Health.
*$p < .050$, **$p < .010$, ***$p < .001$

The perceived influence of receiving sexual education through different sources varied between both samples. Firstly, South African participants perceived greater influence of SRH topics received through formal modern sources, $p < .001$, informal traditional sources, $p < .001$, and informal modern sources, $p < .001$, but not through formal traditional sources, $p = .942$. Secondly, there were significant differences in the perceived influence of receiving education about sexual pleasure. Indeed, the perceived influence of learning about sexual pleasure through informal traditional, $p = .004$, and informal modern sources, $p < .001$, was higher in the South African sample. Thirdly, the perceived influence of learning about sexual violence was higher in the South African sample across all educational sources, that is, formal traditional sources, $p < .001$, formal modern sources, $p < .001$, informal traditional sources, $p < .001$, and informal modern sources, $p < .001$.

We also found that South African participants got tested for STIs more often, $p < .001$, reported more frequent sexual health communication, $p < .001$, experienced more internal consent, $p = .023$, and expressed more external consent, $p < .001$. In contrast, no significant differences between samples were found for the frequency of condom use, $p = .713$, ego-centered sexual satisfaction, $p = .657$, or activity-centered sexual satisfaction, $p = .740$.

3.2. Correlations between the perceived influence of sexual educational sources and SHWB outcomes in the Overall Sample

Results of the correlations for the overall sample are summarized in Table 3. Results showed several significant correlations between the perceived influence of diverse sexual educational sources with the different topics and the SHWB outcomes.

Table 3

Correlations for the Overall Sample

	SHWB Outcomes						
	Condom Use	STI testing	Sexual Communication	Internal Consent	External Consent	Sexual satisfaction (Ego)	Sexual satisfaction (Activity)
Perceived Influence							
Formal traditional sources							
SRH	.09	.07	.18***	.04	.08	.10*	.11*
Pleasure	.04	.16***	.17***	-.11*	-.09	.00	.03
Sexual violence	.10	.21***	.26***	.00	.08	.09	.05
Formal modern sources							
SRH	.03	.30***	.25***	-.07	.13*	-.00	.05
Pleasure	-.11	.33**	.31**	.12	.27**	.22*	.12
Sexual violence	.00	.27***	.26***	-.03	.12*	.02	.03
Informal traditional sources							
SRH	-.05	.28***	.23***	.27***	.28***	.30***	.27***
Pleasure	-.10*	.18***	.17***	.18***	.23***	.21***	.21***
Sexual violence	.01	.36***	.34***	.15**	.25***	.21***	.21***
Informal modern sources							
SRH	.03	.134**	.06	.19***	.20*	.19***	.18***
Pleasure	.08	.16**	.17***	.10*	.12*	.13*	.12*
Sexual violence	.05	.18***	.12*	.14**	.24***	.11*	.12*

Note. SRH = Sexual and Reproductive Health.
*$p < .050$, **$p < .010$, ***$p < .001$

We found two significant correlations between the perceived influence of sexual education across sources and topics with the frequency of condom use. Perceiving more influence of sexual education about sexual violence received through formal traditional sources was related to more condom use, $p = .046$. In contrast, perceiving more influence of sexual education about sexual pleasure received through informal traditional sources educating was related to less condom use, $p =. 040$.

We also detected that the perceived influence of all sexual educational sources focusing on all topics was positively and significantly correlated with the frequency of STI testing, all $p \leq .005$,

apart from the non-significant correlation between the perceived influence of formal traditional sources on SRH topics and the frequency of STI testing, $p = .151$.

Further, health-protective sexual communication was positively and significantly correlated with the perceived influence of receiving sexual education through formal traditional, formal modern, and informal traditional sources across all the topics, all $p \leq .003$. Moreover, perceiving more influence of learning about pleasure, $p < .001$, and sexual violence, $p = .016$ through informal modern sources was positively related to health-protective sexual communication.

The perceived influence of informal educational sources both traditional, all $p < .001$, and modern, all $p \leq .049$, across all topics, was positively and significantly related to the experiences of internal consent and external consent. While perceiving more influence of formal traditional sources addressing sexual pleasure, $p = .028$, was related to less experience of internal consent, the results showed a positive association between the perceived influence of formal modern sources, all $p \leq .011$, and external consent.

Higher ego-centered and higher activity-centered sexual satisfaction was positively and significantly correlated to perceiving more influence of received education through informal traditional, all $p < .001$, and informal modern, all $p \leq .029$, sexual education sources across topics. Perceiving more influence of sexual education about SRH through formal traditional sources was associated with more ego-centered sexual satisfaction, $p = .030$, and more activity-centered sexual satisfaction, $p =. 022$. Lastly, we detected another positive correlation between ego-centered sexual satisfaction and the perceived influence of formal modern sexual education sources dealing with the topic of sexual pleasure, $p = .039$

3.3. Comparison of the Correlations between the German and South African Sample

Table 4 and Table 5 show the correlations between the perceived influence of the different sexual educational sources with the specific topics and the SHWB outcome in the two subsamples.

Table 4

Correlations for the German Sample

	SHWB Outcomes						
	Condom Use	STI testing	Sexual Communication	Internal Consent	External Consent	Sexual satisfaction (Ego)	Sexual satisfaction (Activity)
Perceived Influence							
Formal traditional sources							
SRH	.03	.06	.16**	.01	.12*	.07	.12*
Pleasure	.02	.15*	.18**	-.19**	-.19***	-.06	-.02
Sexual violence	.05	.18**	.19**	-.07	-.01	.04	.09
Formal modern sources							
SRH	.03	.24***	.18**	-.14*	.01	-.04	.01
Pleasure	.01	.39**	.48***	.07	.11	.01	-.02
Sexual violence	.05	.20***	.20***	-.13*	-.00	-.03	.01
Informal traditional sources							
SRH	-.07	.26***	.17**	.25***	.26***	.29***	.30***
Pleasure	-.06	.17**	.26***	.05	.12*	.12	.15*
Sexual violence	.03	.31***	.26***	.01	.14*	.12*	.20***
Informal modern sources							
SRH	.00	.06	.06	.18**	.14*	.18**	.16**
Pleasure	.11	.11	.23***	-.04	-.01	.01	-.00
Sexual violence	.05	.09	.13*	.06	.14	.06	.07

Note. SRH=Sexual and Reproductive Health
*p < .050, **p < .010, ***p < .001.

Table 5

Correlations for the South African Sample

	SHWB Outcomes						
	Condom Use	STI testing	Sexual Communication	Internal Consent	External Consent	Sexual satisfaction (Ego)	Sexual satisfaction (Activity)
Perceived Influence							
Formal traditional sources							
SRH	.29*	.11	.22**	.11	.02	.16	.10
Pleasure	.06	.19*	.13	.01	.06	.08	.12
Sexual violence	.19*	.02	.21*	-.01	.04	.13	-.00
Formal modern sources							
SRH	.03	.28***	.25**	-.04	.18*	.03	.07
Pleasure	-.17	.28	.18	.15	.39*	.37*	.23
Sexual violence	-.04	.23**	.26**	.02	.19*	.05	.04
Informal traditional sources							
SRH	-.03	.24**	.22**	.26**	.24**	.32***	.25**
Pleasure	-.15	.11	.01	.34***	.34***	.33***	.27**
Sexual violence	-.00	.21*	.33***	.28***	.26**	.35***	.26**
Informal modern sources							
SRH	.08	.10	-.04	.15	.22*	.20*	.22**
Pleasure	.07	.05	-.01	.24**	.17*	.29***	.27**
Sexual violence	.06	.09	-.02	.19*	.26**	.16	.18*

Note. SRH=Sexual and Reproductive Health
*p < .050, **p < .010, ***p < .001.

The data showed similar patterns of the relationship between the perceived influence of sexual education sources with their topics and the outcome variables in both county subsamples. Nevertheless, we detected some differences in the pattern of correlations between the two samples. Subsequently, the differences are highlighted for each SHWB outcome and their correlations separately with the perceived influence of sexual education sources. In the end, the findings of the comparison of differences in the effect size of the correlations were reported.

Firstly, in the German sample, there was no significant correlation between the perceived influence of sexual education sources and condom use, all $p \geq .083$. In contrast, in the South African sample, we found two positive and significant correlations between condom use and the perceived influence of formal traditional sources addressing the topics of SRH and sexual violence, all $p \leq .024$.

Secondly, there are more significant correlations found between the perceived influence of sexual education sources and STI testing in the German sample. For instance, perceiving more

influence of receiving education about sexual pleasure from formal modern or informal traditional sources is significantly associated with more STI testing in the German sample, all $p < .001$, but not in the South African sample, all $p \geq .184$. Lastly, perceiving more influence in receiving sexual education through formal traditional sources about sexual violence was positively associated with STI testing in the German sample, $p = .002$, but not in the South African sample, $p = .820$.

Thirdly, in the German sample higher perceived influence of learning about sexual pleasure across formal traditional, formal modern, and informal traditional sexual educational sources was correlated to more sexual health communication, all $p \leq .003$. Whereas, in the South African sample perceiving more influence of informal modern sources was not significantly correlated to sexual health communication, all $p \geq .665$. Additionally, in the German sample more perceived influence from informal modern sources are positively and significantly correlated with sexual health communication, all $p \leq .034$, except for perceiving more influence of learning about SRH through informal modern sources, $p = .292$.

Fourthly, in the South African sample more perceived influence of informal traditional sources regarding the topics of sexual pleasure, $p < .001$, and sexual violence, $p < .001$, was correlated to the experience of more internal consent. Additionally, in the South African sample the perceived influence of informal modern sources with the topics of sexual pleasure, $p = .005$, and sexual violence, $p = .025$; was positively correlated with internal consent. In contrast, in the German sample, we found three negative and significant correlations between the perceived influence of sexual education and the experience of internal consent including formal traditional sources with the topic of sexual pleasure, $p = .002$, as well as in formal modern sources addressing SRH, $p = .017$, and sexual violence, $p = .033$. Lastly, in the German sample perceiving more influence from informal modern sources addressing SRH was associated with more internal consent, $p = .003$.

Fifthly, in the South African sample further informal modern sources addressing sexual pleasure, $p = .002$, and sexual violence, $p < .001$, were positively correlated with external consent. In the German sample, the perceived influence of formal traditional sexual educational sources with the topic SRH was correlated positively with external consent, $p = .041$. In the German sample, we further found a negative correlation between the perceived influence of formal traditional sources addressing sexual pleasure with external consent, $p < .001$.

Sixthly, in the South African sample the perceived influence of learning about sexual pleasure through formal modern sources, $p = .020$, through informal traditional, $p < .001$, and through informal modern sources, $p < .001$, was positively correlated with ego-centered sexual satisfaction. Lastly, in the South African sample, more perceived influence of learning about pleasure, $p = .002$, and sexual violence, $p = .038$, through informal modern sources is significantly associated with more activity-centered sexual satisfaction. In the German sample, we identified a positive association between the perceived influence of formal traditional sources discussing SRH and activity centered, sexual satisfaction, $p = .040$.

In two cases, the effect size of the correlations between the two samples differed significantly. Firstly, the correlation between the perceived influence of informal traditional sexual education sources with the topic of sexual pleasure was significantly weaker in the German sample than in the South African, $z = -2.21$, $p = .014$. Secondly, the correlation between the perceived influence of informal traditional sexual educational sources focusing on the topic of sexual violence and ego-centered sexual satisfaction was also stronger in the South African sample, $z = -2.31$, $p = .011$. No other significant differences between the effect size of correlations were found, all $p \geq .107$.

4. Discussion

4.1. Summary of the main findings

In a cross-sectional study, we examined the relationship between the perceived influence of different sexual educational sources including formal traditional (in schools), formal modern (i.e., evening courses, courses in the university context), informal traditional (i.e., conversations with parents, friends, sexual partners, teachers) and informal modern (i.e., pornography, social media, websites) and SHWB outcomes including safer sex practices, sexual communication, sexual satisfaction, and sexual consent. Additionally, we compared differences in the correlations and SHWB outcomes between a German and a South African sample. All in all, differences in the perceived influence of sexual educational sources and country differences between SHWB outcomes were detected in our data. In general, in the German and South African samples, similar patterns of correlations between the perceived influence of sexual education sources with their topics and the outcome variables were detected. Nevertheless, we found differences in the pattern of correlations between the two samples, as well. Overall, the perceived influence of different

sexual educational sources was positively correlated with SHWB outcomes, especially STI testing, sexual health communication, and sexual satisfaction. We discovered mixed patterns for condom use and sexual consent. Further in the next section the main findings will be discussed and examined concerning the literature.

4.2. Interpretation of the main findings

4.2.1. Interpretation of the main findings regarding the research interest

Our research interest was to investigate differences between our two samples regarding SHWB outcomes and the correlations between the perceived influence of sexual education and SHWB outcomes. Lastly, we expected differences in SHWB outcomes and in the correlation between the perceived influence of sexual education sources and SHWB outcomes between the two samples and aimed for new insights with an explorative approach.

Overall, we found differences in the perceived influence of different sexual educational sources between both samples. Specifically, South African participants perceived greater influence of sexual violence and sexual pleasure topics across all educational sources, when compared to German participants. Likewise, South African participants perceived more influence of SRH topics across all sexual educational sources, except when received from formal traditional sources (i.e., formal school).

Furthermore, there were country differences across several SHWB outcomes, such that South African participants reported getting tested for STIs more frequently, enacted more sexual health communication, experienced more internal consent, and expressed more external consent.

Additionally, when comparing the pattern of correlations between both countries, several differences despite the generally similar patterns also emerged. In the South African sample, we found two positive correlations between the perceived influence of formal traditional sexual educational sources (i.e., formal school) addressing SRH and sexual violence and condom use. In the German sample, the perceived influence of informal modern sources (i.e., social media, pornography, webpages) addressing the topics of sexual pleasure and sexual violence was positively correlated with sexual health communication. To add another dissimilarity, in the German sample, we discovered several negative correlations between the perceived influence of

formal sexual educational sources (traditional and modern) and the experience of internal consent, which was not found in the South African sample. In addition, in the German sample perceiving more influence from formal traditional sources (i.e., former school) addressing sexual pleasure was correlated with less external consent. In both samples ego-centered and activity-centered sexual satisfaction were correlated with informal traditional sexual educational sources (i.e., conversations with parents, friends, sexual partners, and teachers) depending on the topic. However, we found also differences in the relation between the perceived influence of sexual educational sources and sexual satisfaction including ego-centered and activity centered. For instance, in the South African sample, the perceived influence of learning about sexual pleasure through formal modern (i.e., adult course), informal traditional satisfaction (i.e., conversations with parents, friends, sexual partners, teachers), and informal modern sources (i.e., social media, pornography, webpages) was positively correlated with ego-centered sexual.

Further, we found two significant correlations with higher effect sizes in the South African sample. First, the correlation between the perceived influence of informal traditional sources (i.e., conversations with parents, friends, sexual partners, and teachers), on sexual pleasure and second the correlation between the perceived influence of informal traditional sources on sexual violence and ego-centered sexual satisfaction were significantly stronger in the South African sample. These findings highlighted differences between samples regarding SHWB outcomes and further regarding the correlations between the perceived influence of sexual educational sources and SHWB outcomes. Consequently, this illustrated that the context here is operationalized as two different countries of sexual education matters. Research suggested that the sociocultural context of sexual educational programs could not be neglected, our findings supported this claim (e.g., Iyer & Aggleton, 2015)

4.2.2. Interpretations of the main findings regarding the research expectations

Firstly, we expected that the perceived influence of formal traditional sexual education sources (i.e., school) was positively correlated with condom use, STI testing, sexual health communication, and consent. We detected positive and significant correlations between the perceived influence of sexual education through formal traditional sexual educational sources and the frequency of STI-testing and sexual health communication in all samples, which supported our

expectations. Nevertheless, the data could not fully endorse the expectation of positive correlations between the perceived influence of formal traditional sexual education sources with condom use and consent.

In our research, we had mixed findings including negative relationships between condom use and the perceived influence of sexual education. Overall, we only discovered positive and significant associations between the perceived influence of sexual education and condom use in the South African sample. The computed variable of condom use consisted of three questions asking about the frequency of condom use in vaginal, anal, and oral sex. However, Stone et al. (2006) found that less than 2% of participants have always used a condom while engaging in fellatio. The authors also found that correct information about STIs increased the likelihood of using condoms during oral sex. Nevertheless, the authors argued that increased knowledge could not increase the use of condoms alone, given that participants gave reasons including the lack of pleasure and desire, lack of motivation, and preparation for the non-use of condoms during oral sex. On the other hand, Fortenberry et al. (2010) found condom use rates for penile–vaginal sex around 80% for boys and 69% for adolescent girls aged between 14 and 17. Another study assessed condom use among heterosexual adolescent women aged between 15 and 17 during anal sexual practices. The results suggested that in 30% of the cases, a condom was applied (Hensel et al., 2010). These different numbers can illustrate how mixed findings could have occurred in our study since we simplified the assessment of condom use via the computation of one variable. In other studies, a link between sexual education and the use of condom use was suggested (e.g., Weinstein et al., 2008). For instance, a study in Nigeria investigated the impact of a school-based sexual education program on STI/HIV knowledge and more generally to reduce sexual risk behavior. The results of that quasi-experiment illustrated the power of school-based sexual education to firstly improve positive attitudes towards sex-related topics, secondly increased the knowledge about STI/HIV, and lastly reduced sexual riskier sexual behavior including condomless sex (Yohanna et al., 2023).

Moreover, in the German sample, we found negative correlations between internal consent and external consent with the perceived influence of formal traditional sexual education sources addressing sexual pleasure. These results contradicted our expectations and suggested trends in

literature. Since, researchers investigated how perceived sexual education is related to consent and how it can be used to reduce sexual assault in society (Richmond & Peterson, 2020). They found a correlation between greater perceived sexual education and a positive attitude towards sexual consent (Richmond & Peterson, 2020). Furthermore, researchers suggested using comprehensive sexual education as a primary prevention for fighting sexual violence (Schneider& Hirsch, 2020). Accordingly, advocated for an early intervention to fight sexual violence and stated the importance of further evaluations of comprehensive sexual education in schools and its impact on sexual violence, but moreover to SHWB (Schneider & Hirsch, 2020). However, Willis and Jozkowski (2018) discussed several barriers to the success of initiatives promoting affirmative consent with the application of the social-ecological model by Bronfenbrenner (1977). The social-ecological model was developed to better understand human development in its social-ecological context. Bronfenbrenner postulated that apart from the individual and genetic background the environment on different levels influences human development. Accordingly, his social ecological model consists of four different systems, which are interrelated with each other. The microsystem equals the immediate environment of the individual including family, peers, and the school or health services. The mesosystem is the system where different microsystems are interacting, which are important for the individual. For instance, the interaction between the family home and the school could be understood as a mesosystem. The ecosystem is the system of mass media, local politics, neighbors, social services, or the industry impacting the individual. Lastly, the macrosystem can be comprehended as the overall system of attitudes and ideologies in the surrounding society or culture. According to Bronfenbrenner's social ecological model, Willis and Jozkowski (2018) highlighted the existence of barriers toward affirmative consent initiatives in the context of the university on each level. For instance, on the microsystem, a barrier to affirmative sexual consent could be the role of a committed romantic partner as there is a lack of attention to practicing explicit sexual consent communication in an established sexual relationship. On the mesosystem, the interaction between campus life and peers is crucial in the understanding of barriers toward affirmative sexual consent. The authors emphasized the role of alcohol consumption as a possible barrier to the success of affirmative consent initiatives. Moreover, on the ecosystem the use of technology as an inhibitor of face-to-face communication and therefore indirectly impacting the communication about consent was discussed by the authors. Lastly, the macrosystem, the idea of

gender with its assigned stereotypes and assigned roles, and expectations could be seen as the main source of the barriers in fighting sexual assault. Consequently, the authors highlighted that consent had to be seen as a social justice issue with several social determinants, which need to be addressed as well to decrease the prevalence of sexual assault (Willis & Jozkowski, 2018). The addressed barriers could deliver an explanation of the negative correlations between the perceived influence of formal traditional sexual education sources (i.e., school) addressing sexual pleasure and the experience of consent in Germany. However, more research and investigation are needed to understand our mixed findings regarding the correlation between the perceived influence of sexual education through formal traditional sources and consent.

Secondly, we expected that informal traditional sexual education sources (i.e., conversations with parents, friends, sexual partners, and teachers) were positively correlated with SHWB outcomes. This expectation is supported by the findings of our data. In the overall sample, the perceived influence of informal traditional sexual education sources addressing all topics is correlated positively with the frequency of STI testing, sexual health communication, consent, and sexual satisfaction. In the German and South African samples, we found a similar trend that the perceived influence of informal traditional sexual educational sources depending on the topic positively correlated to SHWB outcomes, except condom use. These findings highlighted the importance of holding conversations to improve SHWB. In line with the literature and our data, the importance of parents in providing sexual education through for example conversations became clear (Noorman et al., 2022). Further, a study in Canada illustrated the importance of parental sexual socialization for sexual satisfaction (Nurgitz et al., 2021).

Thirdly, we expected a link between informal modern sources (i.e., social media, pornography, websites) and sexual satisfaction. This expectation can be supported by the results of our correlational analysis as we found positive correlations between the perceived influence of informal modern sexual education sources addressing all three topics and sexual satisfaction, both ego-centered and activity-centered in the South African and in the overall sample. In the German sample, we detected a positive correlation between the perceived influence of informal modern sources addressing SRH and ego-centered as well as activity-centered sexual satisfaction. This

finding, for instance, supported the claim that pornography can be seen as a sexual educational tool to start the conversation about sexual pleasure (e.g., Albury, 2014)

In conclusion, in line with our expectations and the literature, the biological and medical approach typical in formal traditional sources (i.e., former school) are likely to facilitate STI testing and sexual health communication. In a systematic review about the impact of sexual education, the focus on reducing negative SHWB rather than promoting sexual pleasure and desire in sexual education became prevalent, as well (Lameiras-Fernández et al., 2021). Moreover, more modern sources of formal sexual education (i.e., adult courses), showed generally similar patterns of correlations like the correlations between the perceived influence of formal traditional sexual education and SHWB. Informal traditional sexual educational sources (i.e., conversations with parents, friends, sexual partners, and teachers) were correlated to the most SHWB outcomes including STI testing, sexual health communication, consent, and sexual satisfaction in all samples. These findings highlighted the importance of talking about sex to improve SHWB. A greater effect on SHWB, especially on sexual satisfaction, through digital interventions here conceptualized as informal modern sexual educational sources were found in our data. Especially in the South African sample, perceiving more influence through informal modern sexual education sources dealing with different topics is correlated with more internal and external consent as well as ego-centered and activity-centered sexual satisfaction. However, researchers highlighted the challenge of bias in informal modern sexual education sources (e.g., Lameiras-Fernández et al., 2021).

4.3. Limitations of the Study

This was a cross-sectional study and therefore we were unable to prove or provide insights regarding the causality between the perceived influence of sexual education and SHWB outcomes.

The collected data from both countries and the resulting samples were not representative of the general population in both societies. Accordingly, the external validity and more general generating assumptions about the overall connections between sexual education and SHWB as well as differences between the two samples are restricted (Lucas, 2003). In addition, in our research design, we neglected the differences in education related to the former division of Germany and its result in different sexual education before 1990 resulting in shortcomings in the interpretation of the results.

In total participants took around 30mins to finish the survey. A long questionnaire is impacting motivation and attention, which became visible in the high dropout rate of our study. Whereas attention questions were included, there were no items included assessing motivational-affective constructs (Gogol et al., 2014). Consequently, the motivation of participants taking part in the survey could have decreased during the survey and impacted the way they replied. In addition, we did not control any possible test subject effects including for example social desirability. Consequently, we are not able to ignore the possible effects of our data (Krumpal, 2013). The social desirability bias in surveys could be described as the tendency of participants to select a response they expect to be more socially acceptable or desirable instead of their authentic feelings or thoughts (Grimm, 2010).

There are limitations of the study in connection with the used measurement. Firstly, the reliability of the external consent subscale was not satisfactory (Bonniga & Saraswhati, 2020). Consequently, the calculated external consent values in both samples must be critically questioned. Secondly, the used measurements are constructed and tested in mostly Western Educated Industrialized Rich Democratic (WEIRD) countries (Muthukrishna, 2020). Consequently, the cultural fairness as well as the compatibility of the measurements in our two samples could be limited. Experts highlighted the importance of considering cross-cultural challenges occurring in the process of testing psychological constructs (Melikyan et al., 2019). Hence, practitioners and researchers need to have in mind that universal as well as culturally unique psychological characteristics including the assessed constructs, the cultural relevance of the procedure of testing, the culturally appropriate test norms as well as acculturation procedures, language proficiency, the socioeconomic background the quality of received education can impact the ecological validity of the tested constructs (Melikyan et al., 2019).

Lastly, we did not investigate the quality or approach of the sexual education the participants received through different sources. However, differences in the quality or approach of sexual education provided could also explain the different reported correlations between the perceived influence of sexual education and SHWB outcomes (Haberland & Rogow, 2015). In a review article investigating, comparing, and evaluating comprehensive sexual educational programs, the importance of different approaches to comprehensive sexual education for the

effectiveness to reduce the rates of STIs or unintended pregnancies became visible. For instance, findings suggested that comprehensive sexual education with an empowerment approach focusing on a gender and rights perspective is most effective (Haberland &Rogow, 2015).

4.4. Future Directions

Our research gathered new insights about the relationship between the perceived influence of sexual education sources and topics and SHWB outcomes in the context of Germany and South Africa. Nevertheless, more detailed research is required.

We made no comparison regarding different socio-demographic variables including gender, age, sexual orientation, socioeconomic status, relationship status, educational level, or religion, or compared differences regarding residence in urban or rural areas. For instance, in the literature are gender effects on sexual satisfaction mentioned (e.g., Stephenson et al., 2011). Different sexual educational sources could be beneficial to different social groups. For instance, a study conducted in South Africa highlighted that girls due to social and cultural norms behaved more reserved in sexual educational classes (e.g., Pattman & Chege, 2003). This is just one example of how further research on different social groups and their needs in sexual education could be beneficial to design adequate sexual educational programs through different sources improving their SHWB.

Moreover, our research did not focus on sexual minority groups and their specific needs. However, a study investigating the effect of sexual education on the queer community highlighted the mostly heteronormative focus of school-based sexual education (de Heer et al., 2021). In a focus group, people from the queer community expressed the need to learn about safer sex practices in LBGTQI+ settings (de Heer et al., 2021). More research is needed to understand the needs of sexual minority groups concerning sexual education and how different sources of sexual education can be used to improve SHWB. For instance, “The Teen Health and Technology Study” assessed the use of the Internet to educate oneself about sexuality (Mitchell et al., 2014). A sample of 5542 internet users in the United States aged between 13 and 18 was collected. The use of the Internet for sexual education differed significantly depending on sexual orientation. Whereas 19% of heterosexual youth utilized the internet for sexual education, around 78% of gay/lesbian/queer youth looked for sexual information on the Internet (Mitchel et al., 2013). Hence, findings suggest

that sexual minority youth are more likely to research sexual information on the Internet due to a lack of alternatives to get useful information for their needs (Mitchell et al., 2014).

In addition, we summarized informal modern sources as one variable including TV shows, pornography, social media, and web pages. However, complex findings regarding the use of pornography as a sexual education tool became prevalent in the literature review (e.g., Albury, 2014; Goldstein, 2019; McKee et al., 2021; Wright et al., 2018). Accordingly, new research focusing on the perceived influence of pornography and other informal modern sexual educational sources including movies, books, podcasts, or social media as a sexual educational source could gather beneficial new insights to further gain insights about sexual education sources outside the school context and their influence SHWB. This demand for further research goes in line with the findings of "The Teen Health and Technology Study" by Mitchel and colleagues (2014).

All in all, during the literature review a research gap concerning the impact and evaluation of social media sexual educational programs became relevant. Consequently, research investigating the possible benefits and shortcomings to using social media as a sexual educational tool is essential to gain insights for the development of new sexual health interventions.

Moreover, we summarized condom use across different sexual practices including anal, vaginal, and oral sexual intercourse. However, research indicated differences in the prevalence of condom use depending on the form of sexual activity (e.g., Fortenberry et al., 2010; Hensel et al. 2010; Stone et al., 2006). Accordingly, further analysis should investigate the correlations between the perceived influence of different sexual educational sources the condom uses for anal, vaginal, and oral sex separately.

Our research focused on the assessment of behavior related to sex including STI testing, condom use or communication, consent, and satisfaction. However, there are other factors like attitudes toward sexuality that are impacting SHWB (Anderson, 2013). Attitudes can be defined as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly & Chaiken, 1993, p. 1). In the Theory of Planned Behavior by Ajzen, 1991 attitude is seen as one competent besides subjective norm and the perceived behavioral control impacting behavioral intention and lastly behavior. Hence attitudes towards sex could

impact sexual behavior and are therefore crucial to investigate as well. Future research should therefore also investigate how sexual education can contribute to sex positivity and deconstruct sexual taboos. Sex positivity can be understood as a belief system promoting personal sexual autonomy in an open-minded non-judgmental and respectful way while respecting gender and sexuality identities (Ivanski & Kohut, 2017). Lastly, researchers suggested the possibility to solve different social and sexual problems with a sex-positive approach (Williams et al., 2015). For instance, associations between sex negativity and ageism, homophobia, sexism, and racism, which are major societal issues, are reported (Glickmann, 2000). Changing the narrative from seeing sex as something negative to something positive can have a positive impact not only on an individual level as improving sexual health but also in the wider context of dismantling discrimination and prejudices (e.g., Brickmann & Willougby, 2017; Williams et al., 2015).

Additionally, people have sex with different motivations and reasons. Two studies in Portugal highlighted the importance of individual motivations for safer sex practices. In the frame of regulatory focus theory individuals focusing on prevention or promotion while engaging in sexual activity were distinguished (Rodrigues et al., 2019). The study discovered that individuals who are prevention-focused are more inclined to use condoms with causal and regular sexual partners as they perceive health risks as more threatening. (Rodrigues et al., 2019). Consequently, future research can further investigate the role of motivations concerning sexual education and its impact on SHWB to understand how we can use sexual education to motivate people to engage in safer sexual activities.

The results showed besides similar patterns, different trends in the relationship between the perceived influence of sexual education and SHWB outcomes between the German and South African samples. Consequently, the illustrated trend suggests that context is a relevant factor to consider. A review study comparing comprehensive adolescent school-based sexual education between two Western English-speaking countries and the Chinese-speaking context was conducted to give recommendations for future research focusing on the promotion of SHWB (Leung et al., 2019). In conclusion, the review suggested evidence-based sexual educational programs with updated developmental theories and ecological models with mixed methods using longitudinal designs to create contextually sensitive research, which can be used to create effective interventions

(Leung et al., 2019). Consequently, more research focused on the impact of cultural values, assumptions, or traditions is crucial to understand how sexual education can impact SHWB outcomes (e.g., Leung et al., 2019). Moreover, socio-historic trends and developments could impact SHWB and its relationship to perceived sexual education. For instance, researchers demanded more research to understand how pandemics impact sexual health (Pennanen-Iire, 2021).

Furthermore, we cannot turn a blind spot to the predominant Western perspective in psychological science. This research was conducted by Western researchers with mostly Western constructs, ideas, and perspectives. Accordingly, we must reflect on the findings and how they could further increase skews in psychological research (Jones, 2010). Overall, most psychology studies published in leading psychology journals are from European and English-speaking nations (92%) (Newson et al., 2020). Accordingly, this population is overrepresented, and it is difficult to generalize the findings in psychology to the worldwide human population, since there is no sufficient data representing the perspectives and experiences from the African context (Newson et al., 2020). Consequently, more diverse samples from non-WEIRD countries are needed. We have done a step by collecting data from South Africa as well.

Finally, research must always be seen in the context of power and oppression. For instance, a study in Mexico investigated the link between internalized oppression and safer sex practices, suggesting that more homophobia was associated with more sexual risk behavior in homosexual and bisexual men (Hernández & Torres, 2005). Accordingly, future research should follow an intersectional approach to better understand the complex relationship between sexual education and SHWB (e.g., Figuero et al., 2021)

4.5. Implications

Firstly, the research created awareness that the context of sexual education sources matters. Accordingly, sexual educational programs should be tailored to the needs, wants, and values as well as the socio-cultural environment of the communities. An approach to do more community-focused research and interventions could be to include participatory studies in the development and evaluation of social interventions including collaboration (Baum et al., 2006). The use of principles and values from community psychology including an ecological perspective, the importance of well-being, accessibility of resources, social justice with the freedom from oppression, an

intersectional approach to diversity, a sense of community and community collaboration, and finally participation and empowerment could be beneficial for the evaluation and development of social interventions to improve SHWB (Jason et al., 2019)

Secondly, the calculated correlations of the perceived influence of sexual education and SHWB outcomes suggest the importance of other sources of sexual education outside school and other educational institutions. Accordingly, social interventions designed to improve SHWB should also focus on the role of conversations or social, media, and pornography more the informal way of educating oneself about sexuality. Moreover, an exploration of different mediums or approaches to educating about sex is encouraged. For instance, using sports or art to educate about sexuality playfully and positively, could further decrease the stigma around conversations about sex (Gard, 2003). However, there is limited research to use different ways to educate about sex.

Lastly, to ensure that in science the needs of all people are represented and addressed it is essential to rethink diversity in science and do research with diversity in mind (Ghai, 2021). We cannot neglect the impact of power dynamics in science, but also in the themes we study. Accordingly, there is a high need for intersectional, feminist, and decolonized research to fairly represent the needs of everyone and not only address the needs of the most salient and privileged group of people (e.g., Darroch & Gilles, 2014).

4.6. Conclusion

In conclusion, the conducted research highlights the need for contextualization to design social interventions to promote SHWB. Furthermore, it could be seen that the perceived influence of sexual education was mostly positively related to SHWB outcomes, which can suggest the impact of sexual educational programs on SHWB. Nevertheless, education is one pillar to improve SHWB globally, but there is a need to create social change on a more holistic approach focusing further on the justice systems, health systems and attitudes in the society like the framework of the WHO suggested (2010).

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Appendix

A. Participant Information Sheet

This Participant Information Statement provides you with information about the study. Now we ask you kindly to read the following sheet carefully as it gives information about what is involved in this survey. This will help you decide if you want to take part in the research. Please read the following information carefully.

1.Who is running the study?

This research is conducted by the following researchers at Iscte-Instituto Universitário de Lisboa (Portugal): Imke Sich and David L. Rodrigues You can contact me on this email-adress: ishem@iscte-iul.pt

2.What will the study involve for me?

Taking part in this study will involve completing an anonymous online survey assessing information of demographic data, about your forms of sexual education you have received, your sexual communication and health behavior, as well as your feelings, attitudes and behaviors relating to your sexual activities and your sexuality as well as your history of STIs (Sexual Transmitted Infections). Firstly, be asked if you consent to participate, and, if you do, you will continue to complete this survey. After the completion of the survey, we will provide more detailed information about the goals of this study.

3.How much of my time will the study take?

Approximately, the survey will take around 20-30 minutes for you to complete.

4.Who can take part in the study?

In order to participate, you must be 18 years or older and have already engaged in sexual activity (intercourse and/or oral sex). You must also be either German or South African (and speak English or German fluently).

5. Can I withdraw from the study once I've started?

Participation in this study is completely voluntary. Therefore, if you decide to take part in the study and then later change your mind, you are always free to withdraw at any time. You can do this easily by closing the survey webpage, in which case your responses will be deleted and not considered for analysis. You can withdraw your responses any time before you have finished and submitted the questionnaire. But once submitted at the end of the survey, your responses cannot be withdrawn as they are anonymous and therefore, we will not be able to tell which are yours in order to delete them.

6 Are there any risks or costs associated with being in the study?

The potential risks participating in this study are not seen to be greater than those risks faced on a daily basis. But nevertheless, some of the questions may be personal or intimate in nature (e.g., ask you about sexual experiences) which might make you feel uncomfortable. Although most participants report enjoying answering these sorts of questions, you can skip any questions you do not wish to answer.

7. Are there any benefits or compensations associated with being in the study?

Firstly, participants will be educated on the theoretical background of this research in the debriefing. Additionally, participants often testimony that responding to the questionnaires gives them insight into themselves and their relationships. Moreover, details of informative websites and contacts of sexual health related institutions will be given in case that you wish further information on sexual health as well as gender-based violence (e.g., information on the possibility to get tested for sexually transmitted infections [STIs]).

8. What will happen to the information about me that is collected during the study?

With your consent, you agree to us collecting information about your experiences and yourself for the purposes of this research study. This information does not allow us to identify you personally and it will be only used for the purposes outlined in this Participant Information Statement. The researchers running this study are responsible for the processing of your personal data that are collected exclusively for the purposes of the study, in accordance with the guidelines from the Ethics Committee at Iscte and the General Data Protection Regulation (GDPR). Therefore, data collected from each consenting participant will be de-identified and attributed a random participant

number. The data will be kept confidential at all times and stored on a password protected computer. Only the researchers will have access to the anonymous responses. After de-identified, data will be analyzed and can be used in scientific publications in peer reviewed journals and presented at professional meetings. There is further a possibility that we will share the de-identified data with other researchers through professional academic data-sharing systems (i.e., the Open Science Framework, http://osf.io) who wish to verify our analyses and conclusions. Iscte has a Data Protection Officer who may be contacted by e-mail: dpo@iscte-iul.pt. If you consider this necessary, you also have the right to submit a complaint to the Portuguese Data Protection Authority (CNDP).

9. What if I would like further information about the study?

After reading this information sheet and there are still some open questions and lack of clarity, please feel free to email the principal investigator!

10. Will I be told the results of the study?

You have a right to receive feedback about the overall results of this study. You can tell us that you wish to receive feedback, which will be in the form of a summary of results after the study is finished, or a paper published with the findings. To do so, please contact the principal investigator via e-mail.

B. Informed Consent Form

I agree to take part in this research study.

In giving my consent I state that: .

-I am over 18, have already engaged in sexual activity.

-am German or South African (and fluent in either German or English)

-I understand the purpose of the study, what I will be asked to do, and any risks/benefits involved.

-I have read the Participant Information above.

-I understand that being in this study is completely voluntary and I do not have to take part

-I understand that I can withdraw from the study at any time

- understand that my questionnaire responses cannot be withdrawn once they are submitted, as they are anonymous and therefore the researchers will not be able to tell which one is mine.

-I understand that personal information about me that is collected over the course of this project will be stored securely and will only be used for purposes that I have agreed to.

-I understand that information about me will only be told to others with my permission, except as required by law. .

-I understand that the results of this study may be published, and that publications will not contain my name or any identifiable information about me.

=>I agree and consent

=>do not consent to participate

C. Survey

Block 1: Demographics sections

What is your age in years? *[end of survey if below 18]*

What is your nationality?

German

South African

Other. Please Specify *[end of survey]*

[English questionnaire] How do you evaluate your knowledge of English language?

Response scale: 1 = Very weak, 2 = Weak, 3 = Good, 4 = Fluent [end of survey for responses 1 and 2

Do you currently live in your home country?

Yes

No

[*if No*] How close do you feel to your home country?

Response scale: *1 = Not at all close; 5 = very close*

How would you define your gender?

Female

Male

Non-Binary

Trans

Fluid

if you feel that your gender is not represented by any of the options above, please indicate how you identify your gender

I prefer not to answer

How would you describe your current sexual orientation?

Heterosexual

Lesbian/Gay

Bisexual

Queer

Asexual

Pansexual

If you feel that your sexual orientation is not represented by any of the options above, please indicate how you identify your sexual orientation

I prefer not to answer

Where do you live?

Metropolitan area (e.g., urban centers)

Peripheral cities

Rural area

If you feel that your area of residence is not represented by any of the options above, please indicate how you identify where you live

I prefer not to answer

What is the highest degree or level of school that you have completed?

Primary or secondary school

High school

Apprenticeship

University degree

Master's degree

Doctorate degree

Other, please specify

I prefer not to answer

What best describes what you currently do? (select all that apply)

Student and not working

Student and working (part or full time)

Working (part or full time)

Stay-at-home parent

Unemployed

Self-Employed

Retired

Other. Please specify

I prefer not to answer

Which of the descriptions comes closest to how you feel about the money situation in your household income nowadays?

Finding it very difficult on present income

Finding it difficult on present income

Coping on present income

Living comfortably on present income

Living very comfortably on present income

I prefer not to answer

Do you have a religious affiliation? If yes, can you indicate which?

Yes. _____ [text entry]

No

I prefer not to answer

What is your relationship status?

Single and without a romantic relationship

In a romantic relationship

Polyamorous

Engaged

Married

I prefer not to answer

If you feel that your relationship status is not represented by any of the options above, please indicate how you identify your relationship status

Block 2: Forms of received Sexual Education

a. **Formal Sexual Education**

TRADITIONAL SOURCES

-During your 3rd /4th school years, did you attend mandatory sexual education classes?

-During your 5th/6th school years, did you attend mandatory sexual education classes?

-During your 7th-9th school years, did you attend mandatory sexual education classes?

-During your 10th-12th school years, did you attend mandatory sexual education classes?

(all 1=No; 2=Yes)

+ if the participants answer a question with yes

-Can you roughly estimate the number of sessions you attend? (open-ended question)

MODERN SOURCES

-Questions about other forms of sexual education outside the mandatory school years (ie. Modern sources; all 1=No; 2=Yes)

b. **Informal Sexual Education**

TRADITIONAL SOURCES: for example: parents, friends, romantic partner

(all 1=No;2=Yes)

MODERN SOURCES: for example: movies, TV-shows, pornography, social media

(*all 1=No; 2=Yes)*

Block 3: Influences of the received Sexual Education

a. **Influences of Formal Sources of Sexual Education**

-How much did this information have influenced your sexual thoughts and behaviors?

-How much influence does this source have in your life nowadays?

(7-point scales, 1=No influence at all to 7=A great deal of influence)

b. **Influences of Informal Sources of Sexual Education**

-How much did this information have influenced your sexual thoughts and behaviors?

-How much influence does this source have in your life nowadays?

(7-point scales, 1=No influence at all to 7=A great deal of influence)

Block 4: Sexual Education Topics (when applicable)

-Which topics have been addressed in the different sources of sexual education (sexual and reproductive health, sexual diversity, gender identity, sexual orientation, sexual rights, emotions in sex, gender violence, consent, pleasure)

+rate the importance of these topics *(1=Not important at all to 7=extremely important)*

Block 5: Sexual Behavior

-During the last 6 months, how often did you have penetrative sex without using condoms or dental dams?

- During the last 6 months, how often did you have oral sex without using condoms or dental dams?

(1=Never to 7=Everytime you had sex)

-With how many partners did you have penetrative sex without using condoms or dental dams? Please write down the number.

-With how many partners did you have oral sex without using condoms or dental dams? Please write down the number.

+Covariate changes in sexual behavior due to pandemic?

-Compared to your typical behavior before the pandemic, how different was the frequency of sexual activity (penetrative and/or oral sex) in the last 6 months?

(-3=I had sex less often than before to 0= I experienced no significant changes to 3=I had sex more often than before)

Block 6: Health Protective Sexual Communication Scale

[Based on Catania, J.,A. (2020). Health Protective Sexual Communication Scale. In R. R. Millhausen, J. K. Sakaluk, T. D. Fischer, C. M. Davis & W. L. Yarber (Eds.), *Handbook of sexuality-related measures* (4th Ed., pp.215-218.Routledge]

Response Scale 1=never to 4=always

-Asked a new sex partner how they felt about using condoms before you had intercourse

-Asked a new sex partner about the number of past sex partners they had

-Told a new sex partner about the number of past sex partners you had

-Told a new sex partner that you won't have sex unless a condom or dental dam is used

-Discussed with a new partner the need for both of you to get tested for the AIDS virus before having sex

-Talked with a new sex partner about not having sex until you have known each other longer

-Asked a new sex partner if they have ever had some type of VD, liker herpes, clap, syphilis, gonorrhea

-Asked a new sex partner if they ever shot drugs like heroin, cocaine, or speed.

-Talked to a new sex partner about birth control before having sex for the first time

Block 7: Internal/External Sexual Consent Scale

[Based on Jozkowski, K. N., Sanders, S., Peterson, Z. D., Dennis, B. & Reece, M. (2014). Consenting to Sexual Activity: The Development and Psychometric Assessment of Dual Measures of Consent. *Archives of Sexual Behavior*, *43*(3), 437–450. https://doi.org/10.1007/s10508-013-0225-7]

Response Scale 1=I never have this experience to 4=I always have the experience

Internal Consent Scale

Question: How often do you experience do you experience ..during sexual activity?

Factor 1: Physical Response

-Rapid heart beat

-Flushed

Factor 2: Safety/Comfort

- Secure

-Protected

Factor 3: Arousal

-Aroused

-Turned on

Factor 4: Consent/Want

-Consented to

-Agreed to

Factor 5: Readiness

- Ready

- Sure

(1=I never have this experience to 4=I always have the experience)

External Consent Scale Items

Question: How often do you ..?

Factor 1: Direct Nonverbal Behaviors

-I increased physical contact between myself and my partner

-I engaged in some level of sexual activity such as kissing or‘‘foreplay’’

Factor 2: Passive Behaviors

- I did not resist my partner’s attempts for sexual activity

-I did not say no or push my partner away

Factor 3: Communication/Initiator Behavior

-I initiated sexual behavior and checked to see if it was reciprocated

-I used verbal cues such as communicating my interest in sexual behavior or asking if he/she wanted to have sex with me

Factor 4: Borderline Pressure

-I took my partner somewhere private

-I shut or closed the door

Factor 5: No Response Signals

-It just happened

-I did not say anything that I was willing to engage in sexual activity/sexual intercourse

Block 8 Sexual Satisfaction

[based on Brouillard, P., Štulhofer, A., & Buško, V. (2019). The New Sexual Satisfaction Scale and Its Short Form. In *Handbook of sexuality-related measures* (pp. 496-499). Routledge, Taylor & Francis Group]

Response Scale: 1=not at all satisfied to 5=extremely staisfied

Thinking about your sex life (with other people and masturbation) during the last six months, please rate your satisfaction with the following aspects?

Subscale A: Ego Focused

-Quality of my orgasm

-My "letting go" and surrender to sexual pleasure during sex

-The way I sexually react to my partner

-My body's sexual functioning

-My mood after sexual activity

-The Pleasure I provide to my sexual partner

(1=I never behave like this to 4=I always behave like this)

Subscale B: Partner-and Sexual Activity-Centered)

-The balance between what I give and receive in sex

-My partner's emotional opening during sex

-My partner's ability to orgasm

-My partner's sexual creativity

-The variety of my sexual activity

-The frequency of my sexual activity

(1=I never behave like this to 4=I always behave like this)

Block 9: Health Check-Ups

-How frequently are you tested for STIs (HIV, chlamydia, gonorrhea, syphilis)?

(1=I have never been tested, 2=Less than once a year, 3=About once a year, 4=About twice a year,5=About once a month, 6=More than once a month)

-Have you ever been diagnosed with an STI? *(1=No, 2=Yes)*

+if yes How long ago? [enter text]

-Which contraceptive method besides a condom/dental dam are you using? [enter text]

-How frequently are you going to sexual health check-ups?

(1=Never went to one, 2=Less than once a year, 3=About once a year, 4= More than once a year)

Block 10: Control questions

It is important for us that the data collected is reliable.

How much attention did you pay to this questionnaire while you were completing it?

1 = No attention

2 = Very little attention

3 = Moderate amount of attention

4 = Very close attention

Do you want to keep your responses for analysis?

Yes

No, I want to withdraw my responses from the study

Please click here to end the survey

D. Debriefing

You did it! You completed the questionnaire!

Thank you so much for your participation in this study!

The study aimed to get more insight on how different forms of sexual education, attitude towards sex and sexuality, different cultural and social context has an impact on their sexual health and well-being as well as on the sexual behavior, sexual communication, experiencing of consent and in general sexual health behavior. Results of this study are expected to contribute to a better understanding of interpersonal andintrapersonal factors related to condom use, which is important to design more effective interventions to promote safer sex. You can request additional information about this study by contacting me via my e-mail address: ishem@iscte-iul.pt.. Feel also very free to give feedback on the study! If you felt triggered by some questions and you might feel like someone engaged with any non-consensual form of sexual activity. Please find below some resources and helplines to provide support for you!

You can also get more information on HIV and other STIs via the following websites:

International AIDS Society (IAS): https://www.iasociety.org/ .

World Health Organization (WHO):
https://www.who.int/newsroom/factsheets/detail/sexuallytransmitted-infections-(stis) .

German National Health Authority:

https://www.bundesgesundheitsministerium.de/index.html .

South African National Health Authority: https://health.gov.za

Help Lines related to sexual health that can be contacted are .

-Deutsche Aidshilfe (Germany): 0180 33 19411 (max. 9 Cent/min); Monday to Friday from

9.00- 21.00 and Saturday/Sunday 12.00-14.00 .

-HIV and AIDS Helpline (South Africa):0800 012 322 (short code toll-free)

More information on where to get tested for STIs can be obtained through the health department of your local municipality.

Helplines for sexual violence experiences

-German Helpline against violence against women:8000116016

-German Helpline for people who have experienced sexual violence

Operating hours Mo,Wed, Fri 9.00-14.00 and Tue and Thur 15.00-20.00

Telephone Number: 0800 22 55 530

-South African Organization to support victims of sexual violence: People Opposing Women Abuse:076945911, Operating hours Mon to Sun 8.30-16.30

Overview of other helpline numbers related to gender-based violence/sexual violence:

National GBV Helpline 0800 150 150

LifeLine South Africa 0861 322 322

AIDS Helpline 0800 012 322

National Counselling Line0861 322 322

Childline South Africa 0800 055 555

South African Police Service 10111

Legal Aid 0800 110 110

Once again, thank you for your collaboration