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Psychosocial Factors that Influence HIV Testing and Condom Use in men: A cross-cultural perspective.

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European Master in the Psychology of Global Mobility, Diversity, and Inclusion in Society.

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Associate Professor Carla Moleiro, Instituto Universitário de Lisboa

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Resumo

As infecções por VIH continuam a ser uma questão de saúde pública importante a nível mundial. Duas estratégias eficazes de prevenção do VIH são o teste frequente do VIH e o uso consistente do preservativo. Um conjunto crescente de literatura identificou alguns factores psicossociais que influenciam a probabilidade e consistência do comportamento de testagem do HIV e do uso do preservativo em homens, embora tenha sido dada pouca atenção ao papel das normas culturais na formação destas associações. Numa tentativa de abordar estas associações numa perspectiva transcultural, investigámos os efeitos de três factores psicossociais anteriormente associados ao teste do HIV e ao uso do preservativo em homens, em dois países europeus culturalmente distintos, e testámos se estes efeitos se revelaram mais proeminentes no país com os valores mais altos de normas tradicionais de masculinidade. Mais especificamente, examinámos se a Homonegatividade, o Estigma associado ao VIH, e o Conhecimento sobre VIH eram preditivos da testagem do VIH e do Uso do Preservativo entre homens em Portugal e na Turquia, e se estes efeitos se tornaram mais pronunciados no país com normas de masculinidade tradicionais mais elevadas. Como era de esperar, os participantes turcos demonstraram o maior apoio às normas de masculinidade; no entanto, apenas constatámos que a homonegatividade e o estigma associado ao VIH tiveram um valor preditivo negativo da testagem do VIH. Embora os nossos modelos de interacção demonstrassem uma interacção significativa entre o estigma e o efeito do país, a moderação não foi apoiada. Globalmente, estes resultados acrescentam a uma literatura crescente sobre como os factores psicossociais influenciam o comportamento pró-saúde em homens europeus. Estudos futuros devem ter como objectivo replicar estes resultados com uma amostra maior.

Abstract

HIV infections continue to be a major public health issue worldwide. Two effective HIV prevention strategies are frequent HIV testing and consistent condom use. A growing body of literature has identified some psychosocial factors that influence the likelihood and consistency of HIV testing behavior and condom use in men, however little attention has been given to the role of cultural norms in shaping these associations. In an attempt to approach these findings from a cross-cultural perspective, we investigated the causal effects of three psychosocial factors previously associated with HIV testing and Condom Use in men across two culturally distinct European countries and tested whether these effects became more prominent in the country with the highest endorsement of traditional masculinity norms. More specifically, we examined whether Homonegativity, HIV Stigma, and HIV Knowledge were predictive of HIV testing and Condom Use among men in Portugal and Turkey, and whether these effects became more pronounced in the country with higher traditional masculinity norms or vice versa. As expected, Turkish participants displayed the highest endorsement of masculinity norms, however we only found that Homonegativity and HIV Stigma inversely predicted HIV testing. No significant effects were found between HIV Knowledge and HIV Testing., nor between either one of our independent variables and Condom Use. Although we found a significant interaction between HIV Stigma and country effect on HIV Testing, no other moderations were supported. Overall, these findings add to a growing literature on how psychosocial factors influence pro-health seeking behavior in European men. Future studies should aim to replicate these finding with a larger sample size.

Keywords: psychosocial, HIV, homophobia, stigma, HIV knowledge, prevention, LGBT, condom use, testing.

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Introduction

HIV infections continue to be a major public health issue worldwide. According to the World Health Organization (2020), more than 38 million people were living with HIV at the end of 2019. Although new advances in antiretroviral therapy (ART) have enabled people living with the virus to live long and healthy lives, approximately 700,000 people die every year in the developing world due to insufficiencies in HIV services (CDC, 2020).

HIV prevention interventions play a crucial role in slowing down the spread of the virus and reducing fatalities by halting HIV transmissions through a variety of behavioral, medical, and social strategies (Coates et al., 2008). HIV testing and consistent condom use are effective prevention strategies that have been proven to reduce infection rates. This is because awareness of HIV status allows individuals who are already infected to suppress their viral loads through ART, significantly reducing their risk of transmission (Granich et al., 2009). Likewise, consistent condom use has been effective at preventing sexual transmission of STDs, including HIV (Giannou et al., 2016).

Despite these efforts, HIV continues to affect marginalized communities (e.g. the LGBTQ+ community and ethnic minorities), who are at a higher rate due to systemic structural and psychosocial factors that increase the exposure to risk behavior while posing a challenge to prevention efforts (Radcliffe et al., 2010; Santos et al., 2013; Zabrocki et al., 2013). Although globally more women are living with HIV than men, twice as many men make up the number of new diagnoses in Europe (UNAIDS, 2020.). Sex between men was the most common mode of HIV transmission in European Union/European Economic Area countries, accounting for near 40% of all new infections in the region (ECDC & WHO, 2020). Based on these figures, it appears that current prevention efforts targeting men need to be scaled up and should remain a priority in reducing HIV transmissions in the region. A critical next step would be to design evidence-based intervention programs aimed at increasing the rates of HIV testing and condom use in this population by identifying specific factors associated with these prevention strategies. According to the literature, certain psychosocial factors such as the experience of homophobia and HIV stigma influence testing behavior and the consistent use of condoms in men (S. Dias et al., 2015; Duncan et al., 2007; Evangelini et al., 2016; Jeffries IV et al., 2013; Manji et al., 2007).

With a growing body of literature examining the influence of psychosocial factors in sexual behavior and sexual health, it is important to have a greater understanding of how these effects (e.g. the influence of homophobia on HIV testing behavior) vary across populations. Considering that not a lot of attention has been given to the study of underlying mechanism that hamper HIV prevention strategies in men in Southern and Eastern European countries the present project attempts to form a bridge between the existing literature on behavioral science and sexual health, and the health and well-being of marginalized communities in Europe.

By analyzing quantitative data collected from a Portuguese and Turkish sample, this manuscript attempted to replicate some of the findings already present in the literature about psychosocial factors that influence HIV testing behavior and condom use in men from a cross-cultural perspective. Thus, we explored whether there were any differential effects across samples from two culturally distinct European countries.

This paper is structured as follows: the first section of this manuscript is a revision of the literature where the reader is first introduced to psychosocial factors that have been previously associated with reduced HIV testing behavior and condom use respectively. The second section goes into detail about the study design and methodology used for recruitment, data collection and quantitative analysis of said data. Third, the reader will find the results of our quantitative data analyses, starting with descriptive statistics and followed by our regression models. Lastly, our discussion section provides a detailed interpretation of our results and acknowledges limitations present in our methodology and its implications for further research in the topic.

1.Literature review

1.1 Psychosocial Barriers to Testing Behavior and Condom Use

Several studies shed a light on the influence of minority stress on health outcomes among sexual minorities (Cochran et al., 2003; Halkitis et al., 2004; Lewis, 2009). One of the most prominent theoretical frameworks of the influence of unique stressors on health disparities among marginalized groups is minority stress model (Meyer, 1995). Meyer (2003) proposes that health disparities experienced by minority groups can be partly explained by stressors imposed by the dominant culture (e.g., homophobia, heteronormativity) that often lead to a lifespan of discrimination, harassment, and victimization.

Among gay and bisexual men, homophobia and HIV-related stigma have been associated with psychological stress, which then leads to detrimental mental and physical health outcomes (Arnold et al., 2014). Internalized homophobia and identity concealment among gay men have been linked to decreased exposure to LGBTQ+ oriented HIV prevention initiatives. Among Men who have Sex with Men (MSM), young MSM have been particularly at risk of contracting HIV, a phenomenon that has been attributed to increased homophobia, HIV risk behaviors, and decreased exposure to HIV prevention campaigns and testing services (Santos et al., 2013).

Studies conducted with African American men in the United States have examined the experiences of young gay Black men and have found a link between homophobia, stigma towards people living with HIV, and decreased used of HIV-related services. Evangeli et al. (2016) conducted a qualitative study in which they found that young Black men who engaged in sex with other men were often reluctant to get tested for fear of being rejected by their communities in the case of a positive diagnosis. Similarly, a study conducted among African migrants in the U.K identified the fear of coping with a positive diagnosis, and concerns about disclosure and confidentiality as obstacles to regular testing even after engaging in risky sexual behavior. The same study also linked concerns of confidentiality and disclosure to the stigma experienced by individuals living with HIV and discrimination in their communities (Gama et al., 2010).

Similarly, studies conducted with heterosexual and gay men assessed social and cognitive determinants in HIV testing behavior. A study with young African Americans in the American Deep South shed a light on the influence of “masculinity threats” (i.e. attacks on masculine

identity) on STI testing behavior (Lichtenstein, 2004). A qualitative study with young Irish men revealed themes regarding the stigma resulting from using STD testing services and identity risks of experienced while in the waiting room (Balfe & Brugha, 2011). The fear of being misidentified as gay is another potential barrier to HIV testing in cultural contexts in which HIV-related stigma is closely associated with homosexual behavior, a legacy of the AIDS pandemic of the 1980's in which homosexual behavior became synonymous with HIV infection (Andrinopoulos et al., 2011; Figueiredo Catelan et al., 2020).

Knowledge about HIV transmission has been associated with reduced stigma and increased utilization of HIV testing services (James & Ryan, 2018). A study conducted with sub-Saharan African youth revealed higher levels of HIV testing among participants with comprehensive HIV knowledge (Asaolu et al., 2016). These results were consistent with existing literature in the region that elucidate the predictive effect of increasing HIV knowledge on the likelihood of HIV testing in African countries (Gage & Ali, 2005; Omoigberale et al., 2006). Another study involving women in Lampung, Indonesia, yielded similar results with HIV risk behavior and knowledge about HIV transmission being strong indicators of HIV testing motivation (Irmayati et al., 2019).

Unprotected sex (i.e. sexual intercourse without the use of a condom) is the most well-known factor associated with HIV transmission. Homophobia and HIV-related stigma may also play a role in increasing unsafe sexual practices including decreased condom use (Hatzenbuehler et al., 2008). In a study conducted with MSM, individuals reporting higher levels of HIV stigma and sexual minority stress reported a higher engagement in unprotected anal sex (Jeffries IV et al., 2013). Homophobic experiences negatively affect self-esteem and internalized homophobia, factors associated with increased sex risk behaviors (Stokes & Peterson, 1998). In addition to stigmatization, HIV related knowledge (e.g. HIV awareness, knowing someone living with the disease) has been shown to be inversely related to risky sexual behavior including unprotected sex (Radcliffe et al., 2010).

In the context of heterosexual transmissions, one major barrier to prevention efforts has been the inability of women to protect themselves with the use of condoms. Women's ability to protect themselves in sexual relations has been discussed extensively in the literature in terms of their ability to negotiate the use of condoms with their male partners (Pulerwitz et al., 2002).

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Condom use negotiations have been halted by gender power imbalances that favor men in sexual interactions (Langen, 2005). Several factors such as the economic dependence of women on men, partner violence and traditional gender roles have been associated with men's inclination to refuse the use of condoms in sexual encounters (Duncan et al., 2007). A study among Mexican and Mexican American women in the United States found that it was difficult for women to negotiate condom use with their male partners because of patriarchal power structures in Hispanic culture (e.g. men being the head of households whose decisions have to be accepted), especially in the context of marital relationships where women have greater resource dependence on men (Davila & Brackley, 1999). Although, power imbalances have also been documented in same-sex sexual relationships (McClennen et al., 2002), the literature is scarce regarding how this struggles influence condom use. However, studies suggest the existence of power dynamics that resemble those found in heterosexual couples in accordance with their sexual positioning, it is believed that insertive partners are traditionally more masculine and dominant than receptive partners (Dangerfield et al., 2017; Tan et al., 2013) . Given that power struggles may halt condom use negotiations in cultures with patriarchal gender norms, it may be necessary to consider cultural gender norms when studying HIV prevention efforts.

Condom use has also been associated with adequate knowledge about HIV transmission (Raifman et al., 2018). A systematic review on the effect of HIV educational intervention on HIV related knowledge found that improved HIV knowledge led to subsequent adoption of engagement in safer sex practices, including condom use (Faust & Yaya, 2018).

1.2 Need for cross-cultural analyses in HIV-related literature

Differing norms and values regarding sexuality, gender, sex education, and attitudes about HIV vary by culture. High levels of homophobia, including internalized homophobia, have been reported in the United States among African Americans, in Latin American countries, in Africa, and Eastern Europe, to name a few (Arnold et al., 2014; Duncan et al., 2007; Jeffries IV et al., 2013; Manji et al., 2007). HIV stigmatization, which includes prejudice towards people living with HIV, has also been reported in different groups (McCrae et al., 2007; Wagner et al., 2016). However, levels of stigmatization vary by culture. McCrae et al. (2007) suggested greater levels of HIV stigma in Russia than in the United States as a result of cultural and individual differences regarding transmission and attitudes towards people living with the virus. In a cross-cultural

comparison between African Americans and South African respondents, Duncan et al. (2007) reported greater HIV stigma in African Americans, and these findings may result from further marginalization of African Americans in the United States due to cultural and religious norms.

Likewise, knowledge about HIV transmission and prevention also varies across populations. Zabrocki et al. (2013) reported inadequate levels of knowledge about HIV prevention strategies in Central-Asian migrant women in Moscow, for instance. Many respondents in this study seemed unconcerned about HIV due to the belief that the disease is more prevalent among people from different ethnic backgrounds and socioeconomic status. Deficiencies about HIV transmission and prevention knowledge were also reported among adolescents in Nicaragua, a phenomenon the author attributed to conservative sexual norms in Latin American culture and the lack of resources intrinsic to the Nicaraguan educational context (Manji et al., 2007)

Although the number of cross-cultural studies has increased in the past years, there is still a lack of culture specific HIV-related behavioral studies about the influence of psychosocial factors on sexual health in Europe. To this day most of the behavioral research on HIV-related issues has been conducted in North America, and sub-Saharan Africa with only a few studies taking place in the U.K and the rest of the European Union and European Economic Area. Within Europe, certain regions have been left out of the radar due to historical, political, and technical barriers. In Eastern Europe, where rate of transmission continues to rise, trends in same-sex transmission have been unrecognized and understudied by national programs (Pape, 2019). Among Western European countries, Portugal remains the country with the highest rate of new infections, a trend that has not changed since the 90's in the midst of the AIDS epidemic. However, the literature on the effects of psychosocial factors on HIV prevention in Portugal is scarce. Recent reports indicate that Portugal has one of the highest rates of new HIV infections in Europe (S. Dias et al., 2015). The literature on the effects of psychosocial factors on HIV prevention in Portugal is scarce. Gama et al. (2010) found higher rates in HIV testing among African immigrants and significant sex differences within this community. The same article also indicated that being younger and having a low educational status was associated with less testing behavior. Low educational status has been associated with a lack of knowledge about HIV/AIDS in this population (Muñoz-Silva et al., 2009). Regarding knowledge about HIV transmission, a study conducted with youth revealed that young men and women in Portugal had a good level of information regarding HIV transmission and prevention strategies (Reis et al., 2013); however, the study only sampled university students, a

group that may not be representative of this age group. No data could be found about the effects of HIV stigmatization and homophobia on HIV testing behavior and condom use. Since there remains a need to study the influence of psychosocial factors on preventative measures like condom use and testing behavior in Portugal, the present investigation will aim to focus on an in-depth analysis of how these variables are associated. Given that levels of stigmatization and other related psychosocial factors that hamper prevention efforts vary across populations (McCrae et al., 2007), it may be necessary to study the effect of these variables on both HIV testing behavior and condom both in Portugal and across contrasting cultural contexts. The literature on prejudice and stigmatization of sexual minorities and people living with HIV considers these variable as a product of distinct cultural contexts (e.g. social norms, religious attitudes towards sexuality and gender norms) suggesting that distinct cultural norms regarding sexuality and gender could have a moderating effect on the influence of aforementioned variables on HIV testing and condom use.

1.3 Sociocultural profile of the countries in question

1.3.1 Portugal. Portuguese attitudes regarding sexuality and gender norms have changed considerably in the past 30 years (Aboim et al., 2018). In 2004, sexual orientation was amended into article 13 of the Portuguese constitution, and in 2010 a bill legalizing same-sex marriage was approved making Portugal the sixth country in Europe to recognize marriage equality nationwide (Gato et al., 2015). Despite progress in a legal context, members of the LGBTQ+ community still face prejudice and exclusion in their day to day lives (Costa & Davies, 2012; Pereira, Serrano, et al., 2018; Rodrigues et al., 2016).

Heterosexist bullying is prevalent in Portuguese schools, with boys experiencing higher levels of victimization than girls (Rodrigues et al., 2016). Parallel to violence and discrimination faced by Portuguese LGBT pupils, elderly members of this community also face adversities. Research shows that older gay and bisexual individuals in Portugal face greater levels of exclusion, discrimination and stereotypes than their younger fellow members of this community (Pereira, Serrano, et al., 2018).

Although Portuguese culture is still influenced by the Catholic Church, there have been major shifts in gender norms regarding the role of men and women in society with men taking a more active role in caregiving in contrast to the pro-traditional masculinity norms that dominated Portuguese society during the right-wing dictatorship of Antonio de Oliveira Salazar (Aboim et al.,

2018). The construct of masculinity has also been studied and measured as a sociocultural dimension in which masculinity represents a consensus of male-like attributes like assertiveness, toughness, and material success (Hofstede, 1980). Portugal scores low on the masculinity dimension, indicating an orientation towards compromise rather than competition, and a focus on well-being over material success (Hofstede insights, 2020).

Attitudes concerning those living with HIV have also evolved in recent years (S. F. Dias et al., 2006). In Portugal whilst HIV is still considered a serious disease, improvements in ART treatment have shifted the narrative of the condition as a death sentence and as a result the reduction of medical complications associated with successful medical interventions and improved health outcomes for HIV positive individuals has brought the pandemic to a state of near invisibility (Pereira, Caldeira, et al., 2018). This lack of visibility has made it hard for this community to make substantial progress in changing the public's perception, attitudes, and prejudices about HIV. Although instances of discrimination are not as prevalent as they once were, many HIV positive individuals still report microaggressions from medical professionals in clinical settings, and rejection from sexual and romantic partners (Baptista-Gonçalves et al., 2016).

The literature shows strong associations between school-based sex education and greater HIV knowledge (Fonner et al., 2014). School-based sex education has been compulsory in the Portuguese public-school system since 1986, with the latest law enacted in 2009 providing a framework for its implementation (Law No. 60/2009; Ordinance No. 196-A/2010). According to the literature, school-based sex education in Portugal has mainly been taught from a cautionary approach, focusing mainly on the negative consequences of risky sexual behavior (e.g., sexually transmitted diseases); however, in more recent years educators have taken a more holistic approach (Rocha et al., 2016). Evidence from a cross-sectional study with Portuguese students across educational stages (i.e., elementary school, middle school, high school, and university) revealed that students that had received more comprehensive sex education reported higher levels of HIV knowledge and engaged in fewer risk behaviors (Ramiro et al., 2014).

1.3.2 Turkey. Attitudes in Turkey toward sexual minorities and non-traditional gender norms have been dominated by the influence of religious and political institutions (Engin, 2015). Although, homosexuality has been legal for more than a century, the current government headed by president Recep Erdogan has initiated a barrage of anti-LGBTQ+Q rhetoric that puts sexual minorities at

risk of violence and discrimination (Mutluer, 2019). Once a safe-haven for LGBTQ+ individuals in the region, Turkey's reputation as a gay-friendly country in the Middle East has been shattered by a resurgence of nationalist identity politics that have sought to expand their religious base at the expense of scapegoating sexual and ethnic minorities (Ince Yenilmez, 2020; Mutluer, 2019).

To this day public attitudes toward same-sex relationships remain more negative than in Portugal. A recent poll conducted by Kadir Has University indicated that only 45% of respondents believed that LGBTQ+ people should have the same rights as their heterosexual counterparts (Morrison et al., 2004). Likewise, Turkish culture has been characterized as predominantly patriarchal due to strict and hierarchical gender and family structures (Kocabicak, 2020). However, Turkey scores a mere 45 in Hofstede's (2019) masculinity scale, indicating that the country is on the feminine side of the scale. Despite the country lagging behind in terms of gender egalitarianism, Turkish traditional male gender roles might not have the same meaning associated with material ambitions, success and competition as they do in Western individualistic societies (Lease et al., 2013).

HIV-stigma is high in Turkey, a country with low incidence and prevalence of HIV, but high levels of HIV-related discrimination. Workplace discrimination is common with limited positions and higher unemployment for those who disclose their HIV status, a problem that leads to further marginalization (Kose et al., 2012). Although, the great majority of HIV positive individuals receive high levels of social support from their families, issues with self-stigma arise due to unfulfilled family expectation (Öktem, 2015). Discrimination in healthcare settings and violations of confidentiality have also been examined in the literature with a 2017 study reporting that up to 20% of participants had been denied healthcare services due to their HIV status (Gokengin et al., 2017).

Sex education is not included in the country's national curriculum with only a few higher education institutions providing elective sex education courses (Çuhadaroğlu, 2017). Aside from community-based projects aimed at delaying sexual activity or preventing unwanted pregnancies, most of the information students receive in Turkey related to sexual matters come from their peers. Lack of information regarding sexuality has led to widespread misconceptions about HIV transmission, and stigmatizing attitudes towards people living with HIV (Fraim, 2012).

1.4 Present study

The present investigation aimed to build upon prior findings by examining the associations between a heterogeneous cluster of psychosocial factors and two HIV prevention strategies in adult men across two culturally distinct European countries, Portugal and Turkey. More specifically, this research examined the relationship between factors previously associated with decreased HIV testing and condom use (i.e., HIV stigma, homonegativity, and lack of HIV knowledge) and examined whether these relationships became more prominent in the country with the most traditional cultural norms regarding masculinity, and gender equality. Moreover, we tested two plausible, hypotheses. (1) We first examined the main effects of our predictors (i.e., HIV stigma, Homonegativity, HIV Knowledge) on our outcome variables (i.e., HIV testing and condom use), as it has been tested in the literature. (2) We then tested for potential interactive effects between my main predictors and the countries sampled and determine whether these effects became more pronounced with differential endorsements of traditional masculinity ideology. These interactions were conducted as follows: first, we tested whether the relationship between our predictors and outcomes were moderated by country of participation, and secondly, we tested whether endorsements of traditional masculinity mediated these relationships (i.e, the relationship between homonegativity, HIV stigma, HIV knowledge and HIV testing and condom use) as a confirmatory measure. Significant interactions between these variables would indicate that the effects of the predictors on our outcome variables become more, or less pronounced by country of participation, while significant results for the mediations would indicate that the difference observed between countries was at least partially explained by contrasting levels of endorsement of traditional masculinity norms.

Based on previous research, it is predicted that individuals who report the highest levels of HIV stigma and homophobia will self-report lower testing behavior and less consistent condom use, and vice versa. Similarly, individuals who report less HIV knowledge and more traditional gender roles were predicted to report less self-reported HIV testing behavior and condom use, respectively. At the same time, we predict that these effects will become more prominent on the cultural sample with more traditional masculinity norms. If a country's endorsement of traditional masculinity norms moderates the effects of these psychosocial factors on HIV testing and condom

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use, then culture may have a relevant role in prevention strategies. Our literature review suggests that Portugal will have lower endorsement of traditional masculinity norms than Turkey.

2.Methods

1.1 Participants

Our sample consisted of 32 respondents from Portugal and 39 from Turkey (N=71), aged 18-69 years ($M=32.44$, $SD=12.73$) recruited online in both countries. Inclusion criteria considered adult men with residence in Portugal and Turkey, nationals of these countries who took the survey aboard were also included in the analysis. Participants who did not identify as male or who did not indicate their country of residence/nationality were excluded from the analysis. Demographic information was obtained in regard to sex, age, sexual orientation, nationality, and country of residence. Table 1 shows the demographic characteristics for participants in both countries.

Table 2.1

Sample Characterization by Country

Participants by country	Portugal		Turkey	
Measure	<i>n</i>	%	<i>n</i>	%
Sexual Orientation				
Heterosexuals	3	9.4	27	77
Non-heterosexuals	29	90.6	8	22.9
Education				
Some high school	1	3.1	2	5.1
High school	10	31.3	7	17.9
Bachelor's degree	4	12.5	26	66.7
Master's degree	14	43.8	2	5.1
Ph.D. or higher	3	9.4	2	5.1
Age				
18-25	8	25	22	56.4
26-35	18	46.3	4	10.3
36-45	5	15.6	4	10.3
46-55	0	0	2	5.1
Over 56	1	3.1	7	17.9

1.2 Measures

Data collection was made possible with an online Qualtrics survey. The survey was available in English, Portuguese and Turkish. Translations were made possible with the help of native Portuguese and Turkish speakers. The first section of the survey included the consent form, followed by demographic information, and the following scales:

Demographic information: The first block of our online survey consisted of questions regarding age, gender, highest level of education completed, sexual orientation, transgender identity, country of filing, and nationality. Age was an open entry question later coded into age groups. The question about gender self-identification offered four answers: male, female, non-binary, or prefer not to answer. Highest level of education completed was assessed with five increasing levels common in the European Education Area (Bologna Working Group, 2005), these are: some high school, high school, bachelor's degree, master's degree, and Ph.D. or Doctorate. Participants could select 3 different options for sexual orientation (straight or heterosexual, bisexual, or gay or homosexual), or indicate "prefer not to say".

Traditional masculinity norms were measured using the Male Norms Inventory-Short Form (MRNI-SF; Levant, Hall, & Rankin, 2013). The instrument consists of 6 subscales aimed at assessing beliefs and attitudes towards traditional masculinity. The MRNI-SF subscales are Restrictive Emotionality (e.g. suppressing one's emotions), Self-Reliance through Mechanical Skills (e.g. being able to fix a car), Negativity Towards Sexual Minorities (e.g. negative attitudes towards same-sex behavior), Avoidance of Femeinity (e.g. reinforcing the idea that men should watch sports over romantic soap operas), Dominance (e.g. men should be in positions of power), Toughness (e.g. importance of risk taking), and Importance of Sex (e.g. men should always be ready for sex). Participants rated items on a continuous 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The total score was calculated by summing across all items. In our sample, we excluded the Negativity Towards Sexual Minorities subscale which we used as our measure of homonegativity. The remaining 18 items showed good internal consistency in our data ($\alpha = .92$). Higher scores indicated more adherence to traditional masculinity norms.

Homonegativity was measured using the Negativity Towards Sexual Minorities subscale of the

Male Norms Inventory Short Form (Currie, Cunningham, & Findlay, 2004). The subscale consisted of 3 items aimed at assessing attitudes towards sexual minorities. Internal consistency for these 3 items was high ($\alpha = .94$) A higher score indicated more homonegativity.

HIV Stigma was measured using 4 items from the Stigmatizing Attitudes Towards People Living with HIV/AIDS scale (SAT-TPLWHA-S; Beaulieu et al., 2014). This instrument assesses sociocognitive dimensions of HIV-related stigma towards seropositive people, these include concerns about encounters, avoidance of personal contact, responsibility and blame, nondiscrimination, and attitudes about disclosure of serological status and criminalization. Participants rated items on a continuous 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The acronym AIDS was replaced with HIV in accordance with the summary of preferred terminology guidelines of UNAIDS (UNAIDS, 2015). The 4 items used were selected for their good internal consistency in our data sample ($\alpha = .85$).

HIV Knowledge was assessed using 4 items from the HIV Knowledge Questionnaire 18 (Carey, & Schroder, 2002). The HIV KQ 18 assesses knowledge about HIV transmission via 18 questions covering sexual and non-sexual transmission through different scenarios. Participants indicated whether the statement were true. False or “don’t know”. A “don’t know” response indicated an incorrect response. Scores were computed by adding the number of correct responses for the selected items. The 4 items used for this analysis were selected because of their adequate internal consistency in our data ($\alpha = .73$), all other items were excluded from the analysis.

The **HIV Testing Behavior** construct was assessed by asking participants to indicate whether they had ever been tested for HIV other than for immigration and work-related reasons and whether they had been tested in the last 12 months. A control question was added to assess participants’ awareness of testing sites in their areas.

Condom Use was assessed by asking participants to indicate how often they had used a condom in the last 12 months, answers ranged from never to always in a 5-point scale.

2.3 Procedures

This study received approval from the Ethics Commission of ISCTE-IUL in accordance with this institution’s Code of Ethical Conduct in Research (Appendix).

2.3.1 Recruitment

Participants were recruited through a variety of sampling strategies. Dissemination efforts in Portugal were carried out among various LGBTQ+ organizations and thorough paid social media ads, while the Turkish sample was recruited mainly through social media ads and a convenience sample of Turkish LGBTQ+ University students recruited on a popular LGBTQ+ social media online group. Although, we initially aimed at recruiting participants from Poland as well, this third country was later dropped due to time constraints in our recruitment efforts. The survey was published and disseminated in the Spring of 2021 in all three countries.

2.4 Statistical Analysis

2.4.1 Data Preparation

A total of 143 participants responded to the survey. Participants who abandoned the survey, indicated female or unspecified gender, or answer less than 50% of the questions were excluded from the analysis. Data from participants in Poland was deleted from the dataset. Categorical variables such as country of filing and sexual orientation were dummy coded for statistical analysis. Country was coded as 0 for Portugal and 1 for Turkey, while sexual orientation was coded as 0 for heterosexuals and 1 for non-heterosexuals.

2.4.2 Regression analyses models

Multiple linear regression was used to assess the main effects of homonegativity, HIV-Stigma, and HIV-knowledge on HIV testing and Condom Use. A second set of multiple linear regressions focused on evaluating the potential interplay between homonegativity, stigma and knowledge on HIV-testing and Condom Use and the effect of the dummy coded variable for country, thus, we examined the main effects of each one of these predictors, and their respective interaction with the effects of country on HIV testing and Condom Use. Follow up covariate models were also tested to adjust for the potential confounding effects of some demographics and control variables found to be statistically different between countries and significantly correlated to our dependent variables.

2.4.3 Mediation analyses

A set of mediation analyses was conducted as a follow up confirmatory measure to assess whether the differential effects of homonegativity, HIV Stigma, HIV Knowledge on our two outcome variables, HIV testing, and Condom Use observed between countries could be at least partially explained by distinct levels of traditional masculinity norms.

3. Results

3.1 Descriptive statistics

Descriptive analyses were performed (i.e. frequencies, means, and standard deviations) on all variables (See Table 2). Next, independent sample t-tests were performed to look for statistical differences in mean age and education across samples. Levene's test for homogeneity of variance indicated unequal variances between the two groups, Portuguese respondents were on average younger ($M=30.5$, $SD=7.25$) than Turkish respondents ($M=34.03$, $SD=15.76$), but these differences were not statistically significant $t(56) = -1.24$, $p > .05$. Likewise, Portuguese respondents indicated marginally higher levels of education ($M=3.25$, $SD=1.11$) than their counterparts ($M=2.87$, $SD=.80$), but this difference was not statistically significant $t(69)=1.61$, $p > .05$. A chi-square test was performed to examine differences between participants identifying as heterosexual and non-heterosexual across samples revealing that there was a significant association between the country of origin of the participant and their self-reported sexual minority status $\chi^2(1) = 31.05$, $p < .00$. This analysis indicates that based on the odds ratio, the odds of participants identifying as heterosexual in Turkey was 33.8 higher than their Portuguese counterparts.

Means and standard deviations were obtained for all relevant variables, and these were also compared across samples to assess any statistical differences. Turkish participants indicated higher average scores ($M=3.19$, $SD=1.27$) on the traditional masculinity measure than Portuguese participants ($M=2.13$, $SD=.70$) and this difference was statistically significant $t(69) = -4.62$, $p < .00$. Comparatively, Turkish participants also reported ($M=2.86$, $SD=2.25$) higher levels of Homonegativity than Portuguese participants ($M=1.34$, $SD=.61$) $t(69) = -4.04$, $p < .00$ and higher levels of HIV Testing ($M=1.73$, $SD=.36$) $t(69) = -2.43$, $p < .02$ also indicated statistically significant differences between groups. No other variable showed statistically significant differences between Portugal and Turkey.

Table 3.1*Summary Statistics Table for Interval and Ratio Variables*

Variable	<i>M</i>	<i>SD</i>	<i>n</i>	<i>SEM</i>	Min	Max
Homonegativity	2.18	1.87	71	0.22	1.00	7.00
HIV Stigma	2.37	0.25	71	0.03	1.87	3.00
HIV Knowledge	1.78	0.13	70	0.02	1.27	2.00
Masculinity	2.72	1.14	71	0.14	1.00	5.83
HIV Testing	1.63	0.41	71	0.05	1.00	2.00
Condom Use	2.80	1.72	70	0.21	1.00	5.00

3.2 Correlations

A Pearson correlation analysis was conducted for all continuous variables in the model, including our outcome variables (HIV Testing and Condom Use). Multiple significant correlations were observed in the data. Age in years was relatively strongly correlated with endorsement of traditional masculinity norms ($r=0.45, p<.01$), homonegativity ($r=0.56, p<.01$), and HIV Stigma ($r=0.41, p<.01$), indicating an increasing endorsement of these measures with age. Masculinity norms was strongly correlated with homonegativity ($r=0.73, p<.01$) and HIV stigma ($r=0.45, p<.01$), and moderately correlated to HIV Knowledge ($r= -0.28, p<.05$) and HIV testing ($r=0.38, p<.01$). This means that higher endorsement of traditional masculinity norms was associated with higher homonegativity, HIV Stigma, HIV Stigma, but lower levels of HIV Knowledge. Homonegativity was strongly correlated with HIV Stigma ($r=0.59, p<.01$), moderately correlated with HIV Testing ($r=0.30, p<.05$) and inversely with Condom Use ($r= -0.29, p<.05$). Lastly, we also observed a negative moderate correlation between HIV Testing and Condom Use ($r= -0.32, p<.01$). No other significant correlations were found.

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Table 3.2

Bivariate Pearson Correlations

	Education	Age	Masculinity norms	Homo negativity	HIV Stigma	HIV Testing	HIV Knowledge	Condom Use
<i>Bivariate Correlations</i>								
Education	--							
Age		--						
Masculinity Norms			--					
Homonegativity HIV Stigma				--				
HIV Knowledge					--			
HIV testing						--		
Condom Use								--

Note: **. Correlation significant at $p < .001$, *. correlation significant at $p < .05$

3.3 Regression models

3.3.1 Main Effect Models

Two sets of multiple linear regressions models were used to determine the main effects of homonegativity, HIV stigma, and HIV knowledge on HIV Testing and on Condom Use, respectively. The results of the first set analyzing homonegativity, stigma, knowledge and HIV testing were significant, $F(3,66) = 5.76$, $p = .001$, $R^2 = 0.21$, indicating that approximately 21% of the variance in HIV testing was explainable by Homonegativity, stigma, and HIV knowledge. Homonegativity and HIV Stigma significantly predicted HIV testing. HIV Knowledge did not significantly predict HIV testing (See Table 4).

Multiple linear regression indicating the main effects of homonegativity, HIV Stigma, and HIV Knowledge on Condom Use was found to be not significant, $F(3,65) = 2.11, p = 0.107, R^2 = 0.09$. Since the overall model was not significant, the individual predictors were not examined any further.

Table 3.3

Results for Linear Regression with Homonegativity, HIV Stigma, and HIV Knowledge predicting HIV Testing

Variable	<i>B</i>	<i>SE</i>	95% CI	β	<i>t</i>	<i>p</i>
(Intercept)	3.58	0.87	[1.84, 5.31]	0.00	4.12	< .00
Homonegativity	0.11	0.03	[0.06, 0.17]	0.53	3.88	< .00
HIV Stigma	-0.65	0.23	[-1.11, -0.18]	-0.38	-2.78	.01
HIV Knowledge	-0.37	0.36	[-1.09, 0.35]	-0.12	-1.03	.31

Note. Results: $F(3,66) = 5.76, p = .001, R^2 = 0.21$

Unstandardized Regression Equation: HIV Testing = 3.58 + 0.11*Homonegativity - 0.65*Stigma - 0.37*HIV Knowledge.

3.3.2 Interactions Models

Two sets of moderated regression models, one between our three independent variables (i.e. Homonegativity, HIV Stigma, and HIV Knowledge) and HIV testing, and a second one with Condom Use, were tested with the values of the dummy coded variable “country” (i.e. Portugal and Turkey). We found a significant negative effect of HIV Stigma on HIV Testing, as well as a significant effect of the interaction between HIV Stigma and country effect (See Table 5). This means that higher levels of HIV stigma predicted less HIV testing, and that the interaction between HIV Stigma and country also predicted HIV testing behavior. The conditional effects of “country” indicated a negative association between levels of reported HIV Stigma and HIV Testing behavior ($\beta = -.96, p = .02$) for participants in Portugal, whereas no significant association was found among participants from Turkey ($\beta = .07, p = .76$) (See Table 5.1 and Figure 1). Similarly, a significant interaction was observed between HIV Stigma and country effect to predict Condom Use, but not significant main effect of HIV Stigma was observed in this model (See Table 6). No other significant interactions were found in these models.

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Table 3.4

Moderation Analysis Table with HIV Testing Predicted by Stigma Moderated by Country Effect.

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>P</i>
Interaction Model					
(Intercept)	1.50	0.07		21.96	< .001
Stigma	-0.96	0.39	-0.58	-2.47	.016
Country	0.23	0.09	0.28	2.51	.015
Stigma x Country	1.02	0.44	0.54	2.31	.024

Table 3.5

Conditional effects of HIV Stigma at values of Portugal and Turkey

Predictor	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Portugal	-.96	.39	-2.47	.02
Turkey	.07	.21	.31	.76

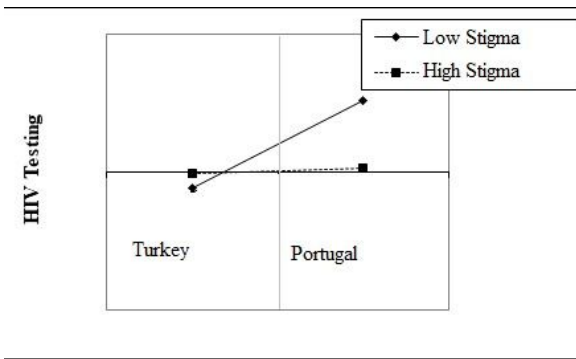
Table 3.6

Moderation Analysis Table with Condom Use Predicted by HIV Stigma and Moderated by Country Effect.

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>
Interaction Model					
(Intercept)	2.71	0.30		9.10	< .001
HIV Stigma	2.51	1.70	0.36	1.48	.144
Country Effect	0.15	0.40	0.04	0.37	.710
Stigma x Country Effect	-4.32	1.94	-0.55	-2.23	.029

Note: After fitting the “initial” main effect and interaction models, follow-up “covariate” models that adjusted for sexual orientation and HIV control question were run to ensure that this potential confounds did not substantially alter the findings. Results were almost identical after adjusting for these covariates.

Figure 3.1 *HIV Stigma x Country Effect on HIV Testing*



3.3.3 Mediation analysis

The results of the mediation analyses indicated that the relationship between homonegativity and HIV Testing was mediated by traditional masculinity norms. The direct effects of homonegativity on HIV Testing were statistically significant, so was the indirect effect ($B = 0.13$).

The mediated regression of HIV Stigma and HIV testing by traditional masculinity norms was not significant ($F(1, 69) = 0.72, p = .40$) in its first step, therefore mediation was not supported; however, the regression of HIV Stigma and Traditional masculinity norms on HIV testing was significant ($F(2, 68) = 10.71, p < .001$), suggesting that HIV Stigma and traditional masculinity norms accounted for a significant amount of variance in HIV testing. Likewise, the regression analyzing the main effect of HIV Knowledge on HIV testing mediated by traditional masculinity norms was not significant either, because the first step examining the main effects of HIV Knowledge on HIV testing was not significant ($F(1, 68) = 1.46, p = .23$).

None of the mediated regressions with Condom Use as the dependent variable were significant. This set of analyses indicate that traditional masculinity norms account for part of the variance between some these independent variables and HIV Testing and Condom Use.

4. Discussion

This study investigated whether three different psychosocial factors were associated with two HIV prevention strategies in two European countries, and more specifically whether these effects would become more, or less pronounced in the country with the highest endorsement of traditional masculinity norms. Consistent with our predictions and the literature, Turkish participants reported higher endorsement of traditional masculinity norms. We found evidence of a main effect of Homonegativity and HIV Stigma on HIV testing, indicating that men who reported lower levels of Homonegativity and HIV Stigma were significantly more likely to report getting tested for HIV. Our interaction models revealed no interaction between homonegativity and country on HIV Testing, however there was a significant interaction between HIV Stigma and country on testing behavior only for participants in Portugal, indicating that the effects of HIV Stigma on HIV testing behavior became more evident in the country with the lowest endorsement of masculinity norms, consistent with our hypothesis. No further associations were found in our analyses. Results from this study suggest that a country's cultural norms regarding masculinity may have differential effects on how Homonegativity and HIV Stigma may influence pro-sexual health behaviors in men. These findings enhance understanding of cross-cultural variabilities in how men approach their sexual health and reproductive health between countries and may also inform within-country variabilities among different sections of the male population.

Importantly, these findings partially converge with those found in the literature that have shown an association between HIV Stigma and lower HIV Testing (Evangelini et al., 2016; Gama et al., 2010). Particularly our data is one of the first studies to analyze a comprehensive panel of psychosocial factors that have been previously associated with HIV Testing and Condom Use in these two countries. Our data highlights the critical importance of considering cultural norms when examining the relationship between psychosocial factors and pro-health behavior. Psychosocial factors like Homonegativity and HIV-related stigma can be contextualized within the cultural milieu. In other words, under different cultures, stigma could manifest in different ways. For instance, under collectivistic cultures where self-interest is subordinated for the collective interest, HIV infection may be a burden to the family structure since having an HIV-infected relative could potentially jeopardize the family's reputation and social status in their community (Ho & Mak, 2013). Our data suggests that a higher endorsement of traditional masculinity norms could be associated with more HIV stigma and less HIV testing; we believe that this interaction could be

better explained by differential manifestation of HIV stigma between our samples. Thus, men in societies with more rigid gender norms and more patriarchal family structure may believe that individuals who get infected with HIV have only themselves to blame, either because they break traditional masculinity norms (e.g. having a heterosexual identity) or because they believe that HIV infection are associated with the decline of “traditional sexual values” (Arnold et al., 2014; Ekstrand et al., 2018). The differential effects of HIV Stigma on HIV testing observed between Portugal and Turkey indicates how different levels of traditional masculinity norms influence this association. This sociocultural difference in masculinity norms is consistent with the literature on cross-cultural dimensions in which Portugal has ranked lower in masculinity and associated measures (e.g. levels of homonegativity) than Turkey (Hofstede’s Insights, 2020; Lamontagne et al., 2018). However, it is important to note that we cannot assure that traditional masculinity norms were the only cultural factor behind these cross-cultural variabilities, thus our data suggests that masculinity norms only partially account for the interrelationship between these variables. These findings may also result from the significant changes that have taken place in the social and political discourse in both countries in recent years. While Portugal has had major advancements in reducing prejudice towards sexual minorities, addressing gender disparities, improving civil rights, and including comprehensive sex-education in the school curriculum (Aboim et al., 2018; Gato et al., 2015; Rocha et al., 2016), Turkey has had major setbacks in these indicators as a result of the rise of nationalism and the conservative political stance of the country’s leadership (Fram, 2012; Ince Yenilmez, 2020; Mutluer, 2019). A more comprehensive cluster of sociocultural norms regarding sexuality and gender should be included in future studies.

Additionally, homonegativity seems to also play a key role in lower HIV Testing. A large body of research suggests that internalized homonegativity may decrease gay and bisexual men’s health seeking behavior (Andrinopoulos et al., 2011; Figueiredo Catelan et al., 2020; Huebner et al., 2002). This relationship may be mediated by the role of self-esteem, substance abuse, and overall mental well-being. Indeed, studies with ethnic minorities in the United States indicate that experiences of homonegativity increase unprotected sex and sex under influence of alcohol and drugs (Hatzenbuehler et al., 2008; MPH, 2008). On the other hand, homonegativity may influence heterosexual men’s exposure to sexual health promotion materials. The belief that HIV is a disease that mainly affects sexual minorities is still widespread in communities with high levels of homonegativity (Andrinopoulos et al., 2011).

Psychosocial Factors that Influence HIV Testing and Condom Use

Contrarily to previous findings (Hatzenbuehler et al., 2008; Jeffries IV et al., 2013; Radcliffe et al., 2010) our data could not establish a link between our independent variables and Condom Use. However, some indicators in our analyses seem to suggest that an association exists between homonegativity and condom use in men. Also, homonegativity was negatively correlated with condom use and a predictor in our regression analyses, but the overall model was not significant. We suspect that our sample size was not large enough to yield significant results because of the low statistical power of our tests for condom use.

The inverse correlation between condom use and HIV testing found earlier in our analysis indicates that those who are less likely to wear condoms, get tested for HIV more frequently. In other words, those participants who have unprotected sex, use HIV testing frequently as a way to check their HIV status, possibly recognizing that the absence of use of condoms puts them at a greater risk to get infected (Granich et al., 2009). However, this relationship should be further explored.

From a practical perspective, our results could be used to inform culturally sensitive intervention programs aimed at increasing HIV testing behavior and increasing condom use in adult men. NGO's in charge of HIV prevention strategies should aim to reduce negative attitudes and beliefs towards sexual minorities if they want to be successful in increasing the use of HIV testing services by heterosexual men, especially in countries with more traditional gender norms. Dissociating the virus with non-heterosexual practices, and sexual minorities, and increasing awareness of HIV as a condition that affects all demographics regardless of sexual identity should be a must. Likewise, HIV prevention interventions should be aware of the role of HIV Stigma as a barrier to HIV services. Previous findings outline how HIV programs and institutions can adopt stigma-reduction practices by first identifying HIV-related stigma behavior and attitudes, using the media to combat misinformation related to the virus, and by engaging HIV-positive individuals in prevention campaigns (Pulerwitz et al., 2010). If in addition to these measures, we take into consideration the intersect between stigma and culture-specific norms and beliefs regarding sexuality and gender, we could identify and target different facets of stigma (e.g. the belief that HIV/AIDS only affects sexual minorities and "unfaithful" individuals).

Findings from this study are important in highlighting the association between culture and psychosocial factors that influence key HIV prevention strategies, but these findings should be

considered in light of several limitations. First, it should be noted that our sample size for both countries was extremely small and not representative of the populations being investigated. Since small sample sizes can undermine the internal and external validity of the study in question, these results should be interpreted with extreme caution. Convenience sampling was used for the recruitment of participants which resulted in asymmetrical demographics between Portugal and Turkey, with the former having an overrepresentation of non-heterosexual, younger participants, and a more years of formal education. Although these differences did not account for any significant effects between samples, future studies should replicate and extend our work by collecting data from larger and randomized samples. Second, condom use was measured at a single point in time, which prevents us from drawing conclusions about casual direction. Likewise, the relationship status of participants was not assessed, since consistent condom use is inversely associated with stable romantic partnerships (Manning et al., 2009), future studies should assess participants relationship status in relation to condom use. Third, the scale used to measure levels of homonegativity was a subscale of the Male Norms Inventory Short Form (MRNI-SF; Levant, Hall, & Rankin, 2013) which raises the issue of multicollinearity between these two variables. As evidenced by our Pearson correlation model homonegativity and traditional masculinity norms were strongly correlated, and this association was highly significant. Severe collinearity can lead to unreliable estimates of the regression coefficient deeming the results meaningless (Farrar & Glauber, 1967), however since no interaction was found between homonegativity, traditional masculinity norms and our outcome variables were not significant this issue can be safely ignored. In addition, all the instruments to conduct this study were translated from English into Portuguese and Turkish by graduate students, it will be important for future researchers to extend the reliability and validity of these scales and their respective translations in both populations.

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Psychosocial Factors that Influence HIV Testing and Condom Use

Annex A

Approval from the Ethical Commission at ISCTE-IUL in accordance with their Research Ethics Code of Conduct.

COMISSÃO DE ÉTICA
PARECER [Final] 12/2021

Projeto "Psychosocial factors that influence HIV testing behaviour and condom use among young men. A cross-cultural study"

O projeto "Psychosocial factors that influence HIV testing behaviour and condom use among young men. A cross-cultural study", submetido pelos investigadores António Milú Roa e Carla Maleiro, foi apreciado pela Comissão de Ética (CE) na reunião de 18 de dezembro de 2020.

A apreciação do projeto suscitou, porém, algumas reservas plasmadas no Parecer [Intercalar] 128/2020, em relação às quais a investigadora veio agora prestar esclarecimentos adicionais, que a Comissão de Ética entende satisfazerem os requisitos éticos exigíveis.

Em suma, assegurados que se encontram a natureza voluntária da participação, a anonimização dos participantes e a confidencialidade dos dados coligidos, entende a Comissão de Ética emitir parecer favorável à realização da investigação, permitindo, desde já, o início dos trabalhos, sem prejuízo da ratificação deste parecer na próxima reunião.

Relator: Vítor Basto Fernandes

Lisboa, 15 de fevereiro de 2021.



O Presidente da Comissão, Professor Doutor Sven Waldrus



O Relator, Professor Doutor Vítor Basto Fernandes