

The Relation Between Religiousness and Masturbatory Guilt: The Role of the Sexual Double Standard

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Abstract

Multiple studies showed that experiencing masturbatory guilt can result in negative mental and physical consequences. The present study examined how Christian religiousness is related to experiencing masturbatory guilt, and to what extent restrictive attitudes towards sexual behaviour of one's own gender and adherence to the sexual double standard are underlying mechanisms of this relation. For this research, data were used from 'Sex under the age of 25', a representative cross-sectional study conducted in 2012 among Dutch youth. The sample consisted of 4750 heterosexual participants (52.9% girls), aged between 12 and 24 years ($M = 19.43$, $SD = 3.00$), from which the majority had a high education level (55.4%). Results showed that religiousness is related to more masturbatory guilt. There are indications that this relationship is the result of increased restrictive attitudes towards sexual behaviour of one's own gender among religious youngsters. It was also shown that religiousness is associated with a higher sexual double standard. Finally, it was found that girls experience more masturbatory guilt than boys, and this relation was even stronger for girls who adhere to a high sexual double standard. Implications for education and suggestions for future research are discussed.

Keywords: masturbatory guilt, religiousness, Christianity, restrictive attitudes, sexual double standard

Samenvatting

Verscheidene onderzoeken hebben aangetoond dat het ervaren van schuldgevoel na masturberen negatieve mentale en fysieke gevolgen kan hebben. De huidige studie onderzocht hoe Christelijke religiositeit en ervaren van schuldgevoel na masturberen gerelateerd zijn, en in welke mate restrictieve attituden tegenover seksueel gedrag van het eigen geslacht en het aanhangen van de seksuele dubbele moraal onderliggende mechanismen zijn van deze relatie. Voor dit onderzoek zijn de data gebruikt van 'Seks onder je 25e', een representatieve cross-sectionele studie uitgevoerd in 2012 onder Nederlandse jongeren. De steekproef bestond uit 4750 heteroseksuele deelnemers (52,9% meisjes), variërend in leeftijd tussen 12 en 24 jaar ($M = 19,43$, $SD = 3,00$), waarvan het merendeel hoogopgeleid is (55,4%). De resultaten laten zien dat religiositeit samenhangt met meer schuldgevoel na masturberen. Er zijn aanwijzingen dat deze relatie het gevolg is van restrictievere attituden tegenover seksueel gedrag van eigen geslacht bij religieuze jongeren. Tevens blijkt dat hoe belangrijker religie is voor jongeren, hoe sterker hun seksuele dubbele moraal is. Als laatste blijkt dat meisjes meer schuldgevoel na masturberen ervaren dan jongens, en dat deze relatie sterker is voor meisjes met een sterke seksuele dubbele moraal. Implicaties voor het onderwijs en suggesties voor toekomstig onderzoek worden besproken.

Sleutelwoorden: schuldgevoel na masturberen, religiositeit, Christendom, restrictieve attituden, seksuele dubbele moraal

Introduction

Although masturbation is one of the most widespread sexual behaviours, it is commonly stigmatized because of its pleasure-focused and fundamental antisocial nature (Schwartz & Rutter, 1998). It can be argued that this stigma contributes to the experience of guilt after engaging in masturbation (Engelhardt, 1972). Masturbatory guilt has shown to have various negative consequences. For example, among men, it has been associated with depression, anxiety, and erectile dysfunction (Chakrabarti, Chopra, & Sinha, 2002; Manjula, Prasadarao, Kumaraijah, Mishra, & Raguram, 2003). Similarly, women who report feelings of guilt are less likely to report sexual adjustment, physiological sexual satisfaction and psychological satisfaction (Davidson & Darling, 1993). These various negative consequences make it important to investigate how masturbatory guilt arises.

Masturbatory guilt shows to be related to religiousness (e.g., Davidson, Moore, & Ullstrup, 2004), and one can argue that this stems from the restriction of masturbation by religions (Davidson, Darling, & Norton, 1995). In the current study it is examined whether we can confirm the relation between Christian religiousness and masturbatory guilt among Dutch youth. Furthermore, it is examined to what extent restrictive attitudes towards sexual behaviour of one's own gender and the adherence to the Sexual Double Standard (SDS) play a role in this relation. The SDS holds prescribing sexual modesty for girls and sexual prowess for boys (Emmerink, Vanwesenbeeck, Van den Eijnden, & Ter Bogt, 2015) and this results in evaluating women more negatively than men for engaging in sexual behaviour (Zaikman & Marks, 2017). It was found that religious people adhere to the SDS more than non-religious people (Emmerink, Van den Eijnden, Vanwesenbeeck, & Ter Bogt, 2016).

The present research aims to fill a gap in the literature by uncovering underlying mechanisms of the association between religiousness and masturbatory guilt, and it aims to build a bridge between research and practice. Findings from this study may be able to partially answer youngsters' call for a more inclusive sexual education in schools (e.g., NOS, 2019), and this renewed education, in turn, might prevent the negative consequences of masturbatory guilt from happening.

Christianity in Relation to Masturbation

Religious doctrines are often the reason why masturbation is still seen as a shameful and problematic activity (Smith, Rosenthal, & Reichler, 1996). In the present study, the focus lays on Christianity's condemnation of masturbation, since Christianity is the most important religion in the Netherlands (Central Bureau for Statistics, 2018). Cornog (2003) showed how

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the condemnation of masturbation by Pope Leo IX in 1054 affected and still affects the anti-masturbation tradition. To illustrate, a preacher from an evangelical congregation preached that engaging in masturbation, together with watching nudity and porn, is a sin, and it results in awful consequences like broken relationships and job loss (De Ruiter, n.d.). The goal is to prevent people from engaging in masturbation, and inducing fear is used to accomplish that. This tactic is also known as fear appeals, which are persuasive messages that draw attention to the negative consequences that follow a particular course of action, and how negative consequences can be avoided with an alternate course of action (Witte, 1992), in this case, refraining from engaging in masturbation. However, as Witte outlines, fear appeals do not always lead to changing into the desired behaviour. This is supported by Davidson, Darling and Norton (1995), who found that religious people do not necessarily engage in masturbation less than non-religious people. However, it is found that when religious people engage in masturbation, they experience more guilt than non-religious youngsters. For example, Davidson, Moore and Ullstrup (2004) found that religious women experience more masturbatory guilt than non-religious women. Furthermore, Laumann, Gagnon, Michael and Michaels (1994) showed a clear tendency that religious men experience more masturbatory guilt than non-religious men (56% against 37%). Therefore, the following hypothesis is formulated (see Figure 1 and 2):

Hypothesis 1. Religiousness is associated with masturbatory guilt.

This apparent direct association might also be partially explained by underlying mechanisms. More specifically, Ohlrichs and Van der Vlugt (2013) stated that religion influences thoughts, views, norms and values, fantasies, desires and the way in which sexuality is discussed and experienced. To illustrate, Smith (2003) outlined nine distinct but connected, and potentially reinforcing, constructive factors in ways religion influences behaviour. In the paragraph about moral directives, he states: "Individuals do not simply conform their consciousness and actions to moral orders (...). Rather, humans internalize the moral directives and orders (...)" (p. 21). Thus, religious youngsters may internalize the condemnation of masturbation and other sexual behaviours, resulting in restrictive attitudes towards it. Indeed, Davidson, Darling and Norton (1995) found that religious women perceive masturbation as a sin and an unhealthy practice more than non-religious women.

Engaging in masturbation is not the only sexual behaviour that is restricted. To illustrate, previous studies found that people with religious affiliations generally have more restrictive attitudes towards sexual behaviour than non-religious people (e.g., Allison & Risman, 2013; Leiblum, Wiegel, & Brickle, 2003; Thornton & Camburn, 1989). These

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attitudes might, in turn, affect their sexual experiences. Although no extensive research has been done on masturbation guilt, it has been found that restrictive attitudes regarding sexual behaviour is associated with higher sex guilt (e.g., Woo, Brotto, & Gorzalka, 2011). Since sex guilt is described as a self-mediated punishment for violating standards (Mosher & Cross, 1971), this mechanism might also apply to masturbatory guilt. However, masturbation is more self-focused than sex. Therefore, the hypothesized association between masturbatory guilt and restrictive attitudes towards sexual behaviour might particularly work for more self related attitudes. This is why the focus lays on restrictive attitudes towards one's own gender.

To summarize, it is hypothesized that religiousness is related to restrictive attitudes towards sexual behaviour of one's own gender, which in turn partially explains why religiousness is related to masturbatory guilt. This resulted in the following hypotheses (see Figure 1):

***Hypothesis 2.** Religiousness is related to more restrictive attitudes towards sexual behaviour of one's own gender;*

***Hypothesis 3.** Restrictive attitudes towards sexual behaviour of one's own gender is related to more masturbatory guilt;*

***Hypothesis 4.** Restrictive attitudes towards sexual behaviour of one's own gender partially mediates the relation between religiousness and masturbatory guilt.*

Christianity in Relation to SDS

As mentioned before, the SDS holds prescribing sexual modesty for girls and sexual prowess for boys (Emmerink et al., 2015). Men are expected to be sexually active, dominant and take initiative, while girls are expected to be submissive and passive (Vanwesenbeeck, 2009). This results in evaluating women more negatively than men for engaging in sexual behaviour (Zaikman & Marks, 2017).

Although the previous paragraph suggests that the SDS may not be prevalent in religious communities since both genders are expected to behave sexually modest, some findings suggest otherwise. Crawford and Popp (2003) reviewed 30 studies on the SDS since 1980, and acknowledged that religious people are more likely to have a higher SDS than non-religious people. More recently, it was shown that those who reported being religious apply the SDS more (Biswas, 2014). This finding was reproduced by showing that people with religious orientations have a higher SDS than those with no religious orientations (Emmerink et al., 2016). Therefore, the following hypothesis is formulated (see Figure 2):

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***Hypothesis 5.** Religiousness is associated with a stronger discrepancy between restrictive attitudes towards sexual behaviour for men and women, indicating a higher SDS.*

SDS in Relation to Masturbation

The SDS implies that girls and boys are held to different standards regarding sexual behaviour (Emmerink et al., 2015). As masturbation is a sexual act in itself, it is probably prone to the SDS. In a representative study in the Netherlands (De Graaf, Meijer, Poelman, & Vanwesenbeeck, 2005), it was shown that 80% of boys and 54% of girls aged between 12 and 25 engage in masturbation. It can be argued that this difference in prevalence may be connected to the SDS, however, that is beyond the scope of the present study. Nevertheless, De Graaf and colleagues (2005) found a small but significant difference in evaluation, whereby 9% of guys and 11% of girls report experiencing guilt after masturbation. Furthermore, in a small study conducted by Kaestle and Allen (2011), it was found that women feel more stigma about masturbating than men, whereby multiple participants suggested that this is due to the SDS. In addition, Clark and Wiederman (2000) showed that women have a more negative attitude towards masturbation than men. Therefore, following hypotheses are formulated (see Figure 2):

***Hypothesis 6.** A higher SDS is associated with more masturbatory guilt;*

***Hypothesis 7.** SDS partially mediates the relation between religiousness and masturbatory guilt;*

***Hypothesis 8.** Gender moderates the relation between SDS and masturbatory guilt, whereby the association is stronger for girls.*

The Present Study

Extensive research is done on the relationship between religiousness and sexual behaviour (e.g., age of sexual initiation and amount of sexual partners). However, little research has been done on the role of religion in the feelings resulting from engaging in specific sexual behaviour, let alone the working mechanisms behind those relations. In this study we examine how Christian religiousness is associated with masturbatory guilt among Dutch youth, and to what extent restrictive attitudes towards sexual behaviour of one's own gender and adherence to the SDS play a role. The expected interrelations between the variables are displayed in Figure 1 and 2.

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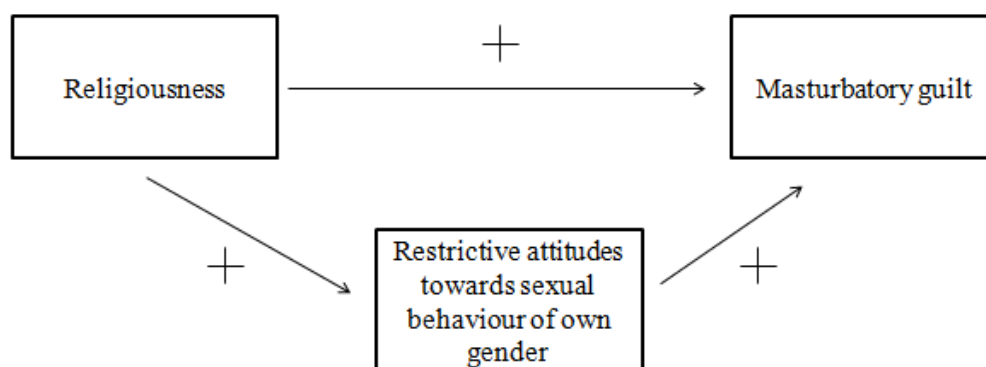


Figure 1. Research model of the relation between religiousness and masturbatory guilt and the mediation of restrictive attitudes, for genders separately

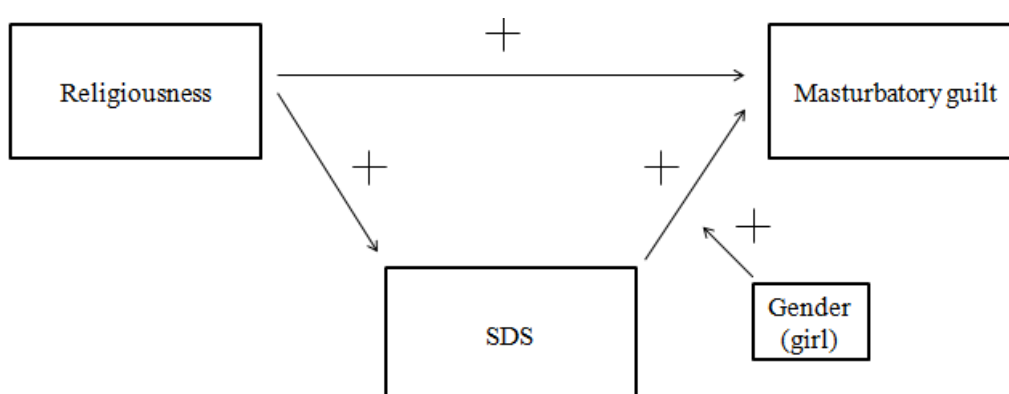


Figure 2. Research model of the relation between religiousness and masturbatory guilt and the moderated mediation of SDS and gender, for genders together

Note. SDS = Sexual Double Standard

Method

Participants

Data were used from 'Sex under the age of 25', a representative cross-sectional study conducted in 2012 among Dutch youth. The total sample consisted of 7841 participants (58.7% girls, 41.3% boys). The participants were then stepwise deleted when not fitting the criteria. First, the participants who stated that they did not answer all questions honestly were excluded (672 participants from the total sample). Then, since the SDS is a highly heteronormative phenomenon (Emmerink, 2017), those who do not regard themselves heterosexual were excluded (295 participants from the subsequent sample). Then the participants who do not see themselves as being non-religious or Christian were excluded (616 participants from the subsequent sample). Finally, participants who had never engaged in masturbation were excluded (1508 participants from the subsequent sample). The final sample

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comprised 4750 participants (52.9% girls), aged between 12 and 24 ($M = 19.43$, $SD = 3.00$), from which 55.4% had a high level of education and 44.0% had a low level of education (missing value of 33 cases).

Design and Procedure

For this cross-sectional study, 33,000 youngsters were approached via high schools and municipalities' registrations (De Graaf, Kruijer, Van Acker, & Meijer, 2012). Youngsters aged 17 and older were more often reached via the municipalities' registrations, since most of them did not attend high school anymore. Schools and the additional participants from the municipalities' registrations were randomly selected, and substantial attention was given to attaining a representative sample of the Dutch population. However, since there was a response rate of only 16.4%, the final sample showed a slight underrepresentation of certain sub-groups, such as high educated Antillean boys aged 12-16 and low educated Turkish girls aged 21 and older.

Prior to participation, participants were explained what was expected from them, and they were assured anonymity and confidentiality of the acquired data. The questionnaire consisted of a total of 174 questions concerning various sex related themes, whereby the routing was different based on the participant's answers. Therefore, no participant answered all 174 questions. After completing the questionnaire, participants were thanked for participation and referred to the website www.sense.info if they wanted to talk to someone or wanted to know more about certain subjects that were addressed in the survey.

Measures

Religiousness. Religiousness was measured using two questions. The first question was whether one found their religion important, with answer possibilities "No", "Yes, a little" and "Yes, very much". Everyone who answered "No" was included, becoming the not religious group. When participants answered "Yes, a little" or "Yes, very much", they were asked to state which religion they were raised with. Only those raised with Christian views were included in this study. Before sharing the data for the present study, De Graaf and colleagues (2012) already grouped all the Christian movements together as being Christian. To clarify, religiousness has been grouped in three variations: not, moderate and very.

Masturbatory guilt. Masturbatory guilt was measured using the item "I feel guilt after masturbating", scored on a 5-point Likert scale ranging from 1 (*totally agree*) to 5 (*totally disagree*). The answers were mirrored for an easier interpretation. This scale was not normally distributed. Therefore, it was transformed into a binary scale. Group 1 consists of

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people with no or very little shame (scored 1 or 2) and group 2 consists of people with a bit, much or very much shame (scored 3, 4 or 5).

Restrictive attitudes towards sexual behaviour of own gender. Restrictive attitudes towards sexual behaviour for girls was measured using two questions, specifically: "What do you think of the following situation: A girl that has sex with a lot of different guys" and "What do you think of the following situation: A girl that hits on a boy". Both items were scored on a 5-point Likert scale ranging from 1 (*not good at all*) to 5 (*very good*) (correlation between the items for both genders: $r = .25, p < .01$; for girls only: $r = .26, p < .01$).

Restrictive attitudes towards sexual behaviour for boys was also measured using two questions, namely: "What do you think of the following situation: A guy that has sex with a lot of different girls" and "What do you think of the following situation: A guy that hits on a girl". Both items were scored on a 5-point Likert scale ranging from 1 (*not good at all*) to 5 (*very good*) (correlation between the items for both genders: $r = .17, p < .01$; for boys only: $r = .21, p < .01$). All answers were mirrored for an easier interpretation. Both measures were normally distributed. For both, the mean of the two questions was used.

SDS. To obtain the score on the SDS, the score on the restrictive attitudes for boys was subtracted from the score on the restrictive attitudes score for girls, a bigger difference indicating a higher SDS.

Analyses

First, multiple correlation analyses were conducted to test for associations and to uncover possible confounders (see Table 1, 2 and 3). The selection of variables is based on previous research regarding correlates of religiousness, sexuality and the SDS (e.g., Ahrold & Meston, 2010; Emmerink et al., 2015; Vanwesenbeeck, 2009). Next, three theoretical models were tested based on the research models that are depicted in Figure 1 and 2, whereby the model in Figure 1 was tested separately for boys and girls. Linear regression analyses were used to test the associations between the predictor (religiousness) and the mediators (restrictive attitudes towards sexual behaviour of own gender and SDS), and binary logistic regression analyses were conducted for all other associations. All steps to test for mediation were in line with the Baron and Kenny (1986) method. In the first step, only control variables were included. In the second step, religiousness was entered into the analysis. In the third step, the mediator (restrictive attitudes towards sexual behaviour of own gender or SDS) was added. In Model 3, wherein the role of the SDS is examined, a fourth and fifth step were

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added, being adding the moderator (gender), and removing religiousness, respectively. All analyses were carried out using IBM SPSS Statistics, version 25.

Results

Descriptives

In total, 4750 respondents participated in this study. Of these, 20.7% felt guilty after engaging in masturbation. The gender distribution in the guilt group seemed slightly uneven (54.1% girls, 45.9% boys), however, no difference is found between the experienced guilt by girls (21.1%) and experienced guilt by boys (20.1%), $F(4748) = 3.18, p = .37$. The majority (75%) of the participants is not religious, 19.3% is moderately religious and 5.7% is very religious. Girls are more often religious (27.3%) than boys (22.4%), $t(4748) = -4.08, p < .001$. Furthermore, girls hold significantly more restrictive attitudes in general for both genders ($M = 2.79, SD = 0.68$) than do boys ($M = 2.58, SD = 0.72$), $t(4748) = -10.41, p = .02$. In the whole sample, the restrictive attitudes for girls ($M = 2.75, SD = 0.76$) seemed higher than those for boys ($M = 2.63, SD = 0.74$), but adherence to the SDS is rather low in general ($M = 0.12, SD = 0.50$). However, boys were shown to have a significantly stronger adherence to the SDS ($M = 0.18, SD = 0.57$) than girls ($M = 0.07, SD = 0.41$), $t(4748) = 7.40, p < .001$.

Correlations

Religiousness showed to be positively correlated with masturbatory guilt in the whole sample ($r = .15, p < .01$), as well as in girls and boys separately (girls: $r = .15, p < .01$; boys: $r = .16, p < .01$). Furthermore, religiousness is positively correlated with restrictive attitudes regarding sexual behaviour for girls held by girls ($r = .23, p < .01$), as well as restrictive attitudes regarding sexual behaviour for boys held by boys ($r = .15, p < .01$). Also, both genders' restrictive attitudes towards sexual behaviour for their own gender are positively correlated with masturbatory guilt (girls: $r = .18, p < .01$; boys: $r = .18, p < .01$). SDS showed a positive correlation with religiousness ($r = .05, p < .01$), but no correlation with masturbatory guilt ($r = .00$). See Table 1 for the associations of both genders, Table 2 for girls and Table 3 for boys respectively. Model 1 focused on girls only and included age, ethnicity and sexual experience. Model 2 focused on boys only and included sexual experience. Model 3 covered both genders and included age, ethnicity and sexual experience.

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Table 1

Spearman's Rho Correlation Matrix Model 3 Entire Sample (N = 4750)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Masturbatory guilt	-									
2. Gender	.01	-								
3. Religiousness	.15**	.06**	-							
4. Age	-.04**	.14**	.05**	-						
5. Ethnicity	.04**	.02	.14**	.02	-					
6. Education level	.00	.02	.00	-.05**	-.02	-				
7. Housing	-.02	.15**	.02	.51**	.03*	.04**	-			
8. Relationship status	.02	-.19**	-.01	-.32**	.04**	.04**	-.22**	-		
9. Sexually experienced	-.12**	.19**	-.09**	.49**	.01	-.12**	.26**	-.47**	-	
10. SDS	.00	-.10**	.05**	-.09**	.08**	-.07**	-.04**	.06**	-.03*	-

Note. SDS = Sexual Double Standard.

* $p < .05$. ** $p < .01$. (2-tailed)

Table 2

Spearman's Rho Correlation Matrix Model 1 Only Girls (n = 2511)

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Masturbatory guilt	-								
2. RA Girls	.18**	-							
3. Religiousness	.15**	.23**	-						
4. Age	-.07**	-.10**	.06**	-					
5. Ethnicity	.05*	.11**	.14**	.02	-				
6. Education level	-.01	-.15**	.03	.00	-.04	-			
7. Housing	-.05*	-.10**	-.00	.53**	.03	.05**	-		
8. Relationship status	.03	-.04	-.04	-.25**	.05*	.06**	-.18**	-	
9. Sexually experienced	-.17**	-.10**	-.13**	.39**	-.01	-.10**	.23**	-.41**	-

Note. RA = Restrictive attitudes.

* $p < .05$. ** $p < .01$. (2-tailed)

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Table 3

Spearman's Rho Correlation Matrix Model 2 Only Boys (n = 2239)

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Masturbatory guilt	-								
2. RA Boys	.18**	-							
3. Religiousness	.16**	.15**	-						
4. Age	-.02	.00	.02	-					
5. Ethnicity	.04	.01	.15**	.03	-				
6. Education level	.01	-.13**	-.04	-.10**	-.01	-			
7. Housing	.02	-.03	.04	.46**	.03	.05*	-		
8. Relationship status	.01	-.07**	.03	-.25**	-.36*	.02	.03	-	
9. Sexually experienced	-.09**	-.06**	-.08**	.56**	.03	-.14**	.25**	-.49**	-

Note. RA = Restrictive attitudes.

* $p < .05$. ** $p < .01$. (2-tailed)

The Role of Girls' Restrictive Attitudes for Girls

To study the relation between religiousness, restrictive attitudes towards sexual behaviour for own gender and masturbatory guilt for girls, multiple analyses were conducted, controlling for age, ethnicity and sexual experience. Predictor variable religiousness and the dependent variable masturbatory guilt have a significant positive association, indicating that the more important religion is to girls, the more masturbatory guilt they experience (see Table 4).

Religiousness and restrictive attitudes towards sexual behaviour for girls have a significant positive association, $F(3, 2506) = 58.82$, $p < .001$ (not depicted in Table 4), indicating that the more important religion is to girls, the more restrictive attitudes towards sexual behaviour for girls they hold.

The next analysis showed that restrictive attitudes towards sexual behaviour for girls is significant positively associated with masturbatory guilt (see Table 4). Thus, the basic assumptions for mediation as proposed by Baron and Kenny (1986) were met.

The last step was to test whether restrictive attitudes towards sexual behaviour for girls (partially) mediates the association between religiousness and masturbatory guilt. As can be seen in Table 4, the Odds Ratio (OR) of religiousness decreased from 1.73 ($p < .01$) to 1.51 ($p < .01$) when restrictive attitudes was added to the model. Therefore, these results suggest partial mediation of restrictive attitudes. However, no statistic test is available to examine whether the decrease in OR is significant. Therefore, no statistic conclusion can be inferred from the outcomes of previous tests.

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Table 4

Model 1: Religiousness (IV), Restrictive Attitudes (Me) and Masturbatory Guilt (DV) for Girls (n = 2511)

	Exp(B)	95% CI		R ^{2a}
		Lower	Upper	
<i>Model 1: Control</i>				.04
<i>Variables</i>				
Age	1.00	0.96	1.04	
Ethnicity	1.47*	1.05	2.05	
Sexually experienced	0.39**	0.30	0.50	
<i>Model 2: Predictor</i>				.07
<i>Variables</i>				
Age	0.98	0.94	1.02	
Ethnicity	1.24	0.88	1.74	
Sexually experienced	0.46**	0.36	0.60	
Religiousness	1.73**	1.48	2.02	
<i>Model 3: Mediation</i>				.10
<i>Variables</i>				
Age	0.99	0.95	1.03	
Ethnicity	1.09	0.79	1.55	
Sexually experienced	0.46**	0.36	0.60	
Religiousness	1.51**	1.29	1.78	
Restrictive attitudes	1.58**	1.37	1.83	

Note. ^a= Nagelkerke R Square

* $p < .05$. ** $p < .01$. (2-tailed)

The Role of Boys' Restrictive Attitudes for Boys

To study the association between religiousness, restrictive attitudes towards sexual behaviour for own gender and masturbatory guilt for boys, the same steps were taken as for girls, now controlling for sexual experience only. A significant positive association was found between the predictor variable religiousness and the dependent variable masturbatory guilt, indicating that the more important religion is to boys, the more they experience masturbatory guilt (see Table 5).

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Religiousness and restrictive attitudes towards sexual behaviour for boys have a significant positive association, $F(2, 2236) = 27.56, p < .001$ (not depicted in Table 5), indicating that the more important religion is to boys, the more restrictive attitudes towards sexual behaviour for boys they hold.

The next analysis showed that restrictive attitudes towards sexual behaviour for boys is significant positively associated with masturbatory guilt (see Table 5). Thus, the basic assumptions for mediation as proposed by Baron and Kenny (1986) were met.

The last step was to test whether restrictive attitudes towards sexual behaviour for boys (partially) mediated the association between religiousness and masturbatory guilt. As can be seen in Table 5, the OR of religiousness lowered from 2.07 ($p < .01$) to 1.89 ($p < .01$) when restrictive attitudes was added to the model. Therefore, these results also suggest partial mediation by restrictive attitudes, and it seems that the partial mediation effect of restrictive attitudes may be stronger for boys than for girls. However, we could not test whether the difference in OR was statistically significant, and thus, no statistic conclusion can be inferred from the outcomes of previous tests.

Table 5

Model 2: Religiousness (IV), Restrictive Attitudes (Me) and Masturbatory Guilt (DV) for Boys (n = 2239)

	Exp(B)	95% CI	R ^{2a}
		Lower Upper	
<i>Model 1: Control</i>			
<i>Variables</i>			
Sexually experienced	0.64**	0.52 0.79	.01
<i>Model 2: Predictor</i>			
<i>Variables</i>			
Sexually experienced	0.70**	0.56 0.86	.06
Religiousness	2.07**	1.75 2.50	
<i>Model 3: Mediation</i>			
<i>Variables</i>			
Sexually experienced	0.72**	0.58 0.90	.09
Religiousness	1.89**	1.60 2.25	
Restrictive attitudes	1.64**	1.42 1.90	

Note. ^a = Nagelkerke R Square

* $p < .05$. ** $p < .01$. (2-tailed)

The Role of the SDS

To study the association between religiousness, the SDS, masturbatory guilt and the moderating effect of gender, multiple analyses were conducted, controlling for age, ethnicity and sexual experience. A significant positive association was found between predictor variable religiousness and the dependent variable masturbatory guilt (see Table 6), indicating that the more important religion is to youngsters, the more masturbatory guilt they experience.

The association between religiousness and SDS is positively significant, $F(3, 4646) = 20.06$, $p < .01$ (not depicted in Table 6), indicating that the more important religion is to youngsters, the higher their SDS is.

The next analysis showed that there is no significant association between SDS and masturbatory guilt. As Table 6 showed, the OR changed from 1.87 ($p < .01$) to 1.88 ($p < .01$) when SDS was added to the model. Furthermore, the basic assumptions for mediation as proposed by Baron and Kenny (1986) were not fully met.

However, since the positive association between SDS and masturbatory guilt was only expected for girls, the interaction term between SDS and gender was added. The analysis showed a trend towards a moderating effect of gender ($p = .057$), so the interaction effect is borderline significant. As can be seen in Table 6, however, no variance was explained by the SDS nor its interaction with gender.

Next, an additional analysis was conducted in which religiousness was not included as an independent variable. The expected association between SDS, gender and masturbatory guilt was found when excluding religiousness from the model, therefore testing moderation only instead of moderated mediation. Both the interaction between SDS and gender as well as gender on its own significantly predict masturbatory guilt (see Table 6, model 5). As can be seen in Figure 3, girls in general experience more masturbatory guilt than boys, and girls with a high SDS experience most guilt. No difference was found in amount of guilt experienced by boys adhering a low SDS versus boys adhering a high SDS.

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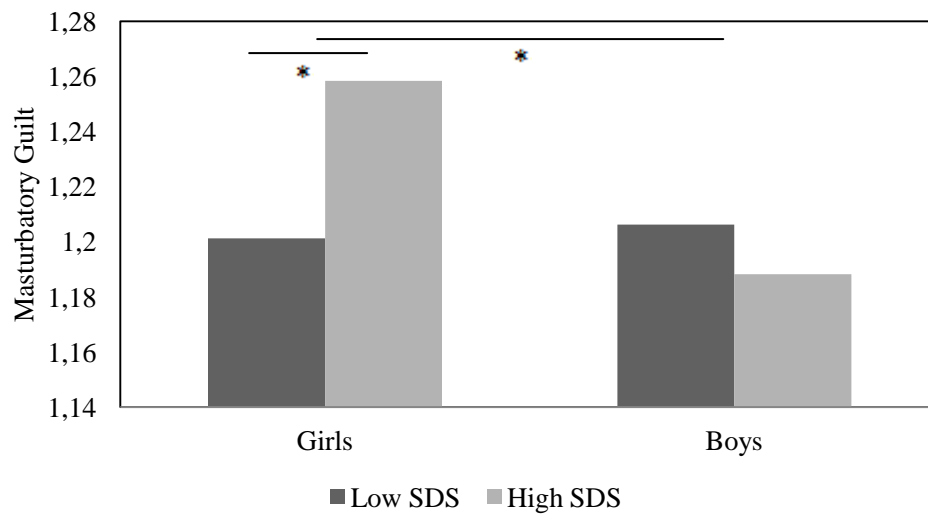


Figure 3. Significant main effect gender and interaction effect gender and SDS on masturbatory guilt ($N = 4750$)

Note. SDS = Sexual Double Standard, masturbatory guilt measured on 5-point Likert scale

* $p < .05$. (2-tailed)

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Table 6

Model 3: Religiousness (IV), SDS (Me), Gender (Mo) and Masturbatory Guilt (DV) (N = 4750)

	Exp(B)	95% CI		R ^{2a}
		Lower	Upper	
<i>Model 1: Control</i>				.03
<i>Variables</i>				
Age	1.03	1.00	1.06	
Ethnicity	1.43**	1.13	1.82	
Sexually experienced	0.48**	0.40	0.57	
<i>Model 2: Predictor</i>				.06
<i>Variables</i>				
Age	1.00	0.98	1.03	
Ethnicity	1.18	0.92	1.51	
Sexually experienced	0.56**	0.47	0.68	
Religiousness	1.87**	1.67	2.10	
<i>Model 3: Mediation</i>				.06
<i>Variables</i>				
Age	1.00	0.97	1.03	
Ethnicity	1.20	0.94	1.53	
Sexually experienced	0.57**	0.47	0.68	
Religiousness	1.88**	1.67	2.10	
SDS	0.92	0.79	1.06	
<i>Model 4: Moderation</i>				.06
<i>Variables</i>				
Age	1.00	0.97	1.03	
Ethnicity	1.21	0.94	1.54	
Sexually experienced	0.56**	0.46	0.67	
Religiousness	1.86**	1.66	2.08	
SDS ^b	0.83	0.68	1.00	
Gender ^c	1.14	0.98	1.32	
SDS ^b * Gender ^c	1.34	0.99	1.82	

Table 6 (continued)

<i>Model 5: Excluded</i>				.03
<i>Variables</i>				
Age	1.02	1.00	1.05	
Ethnicity	1.45**	1.14	1.85	
Sexually experienced	0.47	0.39	0.56	
SDS ^b	0.86	0.71	1.03	
Gender ^c	1.21*	1.04	1.40	
SDS ^b * Gender ^c	1.39*	1.03	1.87	

Note. SDS = Sexual Double Standard, ^aNagelkerke R Square, ^bCentred, ^cReference category = boys
* $p < .05$. ** $p < .01$. (2-tailed)

Discussion

The aim of this study was to investigate the association between religiousness and masturbatory guilt, and to what extent restrictive attitudes towards sexual behaviour of one's own gender and adherence to the SDS play a role in this association. The results showed that the more important youngsters find their religion, the more they experience masturbatory guilt. This relationship may partially result from the fact that youngsters who find their religion more important hold more restrictive attitudes towards sexual behaviour for their own gender than youngsters who find religion less important. In addition, girls experience more masturbatory guilt than boys, and this is stronger for girls that adhere a high SDS.

In line with hypothesis 1, results showed that the more important youngsters find religion, the more masturbatory guilt they experience. This is consistent with previous research (e.g., Davidson et al., 2004). This suggests that the condemnation of masturbation by Christianity makes religious youngsters vulnerable for experiencing masturbatory guilt, and thus for its negative consequences.

The relationship between religiousness and masturbatory guilt seems to be partially explained by the fact that youngsters who find their religion more important hold more restrictive attitudes towards sexual behaviours for their own gender, which is in line with hypothesis 2, 3 and 4. Thus, one of the reasons why youngsters who find their religion more important experience more masturbatory guilt may be that they internalized the imposed

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restrictions of their religion. This is in line with the proposed multiple ways in which religion influences sexuality (e.g., Ohlrichs & Van der Vlugt, 2013). It provides an opportunity in how to diminish masturbatory guilt, as one can be taught other, more positive, results of masturbation that might be internalized as well.

Furthermore, as expected based on hypothesis 5 and contributing to the existing body of literature (e.g., Biswas, 2014), the more important religion is to youngsters, the more they hold boys and girls to different standards regarding sexual behaviour. It was also expected, as put forward in hypothesis 6, 7 and 8, that these different sexual standards would affect women more than men. This was almost confirmed when their religious background was taken into account, and without their religious background taken into account it was indeed shown that girls were affected more by the SDS. Therefore, there are cautious indications that the connection between religiousness and masturbatory guilt in girls is also partly the result of the SDS. Furthermore, girls that adhered to a higher SDS experienced more masturbatory guilt than those who adhered to a lower SDS. This reckons that the SDS can have serious negative effects on girls. This also gives an opportunity in how to reduce masturbatory guilt among girls, namely diminishing their SDS.

However, in the current study, the SDS is a construct of the difference between the variables restrictive attitudes for girls and for boys. Therefore, one cannot be certain that this finding adds to restrictive attitudes as an explanation of the underlying mechanism between religiousness and masturbatory guilt. For future research it would be fruitful to test whether restrictive attitudes and SDS explain a different part of the association between religiousness and masturbatory guilt.

Two findings are to be mentioned here as well as concerning factors associated with the SDS. Correlations showed that SDS and education level are related, whereby a lower education level is associated with a higher SDS adherence. This is in line with previous findings (e.g., Goncalves et al., 2008). Another contribution to the existing body of literature (e.g., Emmerink et al., 2016; Sprecher, Treger, & Sakaluk, 2013) is the finding that boys adhered a higher SDS than girls. Both findings result in more robust support on the matters.

Strengths and Limitations

A big strength of this study was the large and representative sample of Dutch young adults that was used, which increases the generalizability of the results. Furthermore, this study measured religiousness in terms of importance rather than the regularly used religious service attendance. This used measure resembles intrinsic religiousness, which is described as the perception of the impact of religion on one's life, and it has been conceptually related to

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personal religious commitment (Woo, Morshedian, Brotto, & Gorzalka, 2012). Woo and colleagues suggest that this covers religiousness more extensively.

This research also faces some limitations. For example, the measure of the variable masturbatory guilt, scored on a 5-point Likert-scale, had to be dichotomized because of the skewed distribution. This may have resulted in a loss of relevant information and thereby in less nuanced conclusions. Another limitation is the absence of a reliable variable for communication about sexuality. Since multiple studies show the effects of communication on the way sexuality is experienced (e.g., De Graaf, 2007), a possible confounder or potential protective factor is missed. For future research it would be fruitful to test what participants' parents and friends taught them regarding sexual behaviour and sexuality, and take that into account.

Moreover, the restrictive attitudes scales as well as the SDS scale were based on two questions regarding boys' behaviour and two questions regarding girls' behaviour. In previous research, a distinction was made between four subtypes of submissive attitudes (Hendrick & Hendrick, 1987), which suggests that an overly simplistic representation of restrictive attitudes was used in this study. In future research, restrictive attitudes should be measured more extensively. The SDS that was derived from the difference between the restrictive attitudes towards girls and boys could then face the same problem as its two subscales, namely possibly being overly simplistic. As a proper measure of the modern SDS, the SASSY scale developed by Emmerink, Van den Eijnden, Ter Bogt, and Vanwesenbeeck (2017) is advised to use in future research.

The final limitation is the absence of the statistic analysis to test for (partial) mediation. Although some of the outcomes suggested a partial mediation effect, the significance of these mediation effects could not be tested since existing tests (e.g., Sobel test) do not allow for mediation testing when using both standardized Beta's and Odds Ratios. Therefore, in future research, it would be fruitful to use a different measure for masturbatory guilt.

Conclusion and Implications

This study aimed to uncover some of the working mechanisms behind the association between religiousness and masturbatory guilt. The findings advance our understanding of the way in which religiousness affects sexual experiences. The research has also build a bridge between science and practice since it can be used for improving sexual education. Since restrictive attitudes towards sexual behaviour showed to be associated with masturbatory guilt, emphasis should be placed on changing these attitudes. Davidson and Darling (1988)

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showed that changing attitudes through sexual education classes has a positive effect on the acceptance of masturbation and its health effects. Furthermore, diminishing the SDS should be put on the agenda as well. As sexual standards are conceptually similar to attitudes, the effect found by Davidson and Darling (1988) might work for this as well. Diminishing the SDS would not only be helpful for girls to embrace their sexuality, it would also help boys as it was shown that the SDS has also negative effects on them (e.g., restricts the development of emotionality; Vanwesenbeeck, 2011). Incorporating these suggestions in sexual education would result in an evidence-based and more comprehensive sexual education programme, which can be seen in the light of a response to the call of youngsters for more positive and inclusive sexual education (e.g., NOS, 2019).

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