Beliefs About the Need to Control One’s Thoughts and Cognitive Self-consciousness Are Associated with Sexual Stigma

Orkun Aydin1 · Aygül Kaya1 · Zümra Cengiz1 · Esra Sena Keser1 · Pınar Ünal-Aydın1 · Marcantonio M. Spada2

Accepted: 26 August 2022 / Published online: 8 September 2022
© The Author(s) 2022

Abstract

Introduction Sexual stigma has been found to be related to a variety of factors including age, ethnicity, religion, gender, and education. However, we still know relatively little about the association of cognitive constructs with homonegativity. In the current study, we aimed to explore the associations between metacognitions and sexual stigma among young adults.

Methods Five hundred thirty-eight individuals participated in the study. The following self-report measures were administered: Attitudes Toward Lesbians and Gay Men-Short Version (ATLG-S), Hudson and Ricketts Homophobia Scale (HRHS), and the Metacognitions Questionnaire 30 (MCQ-30). Pearson product-moment correlations and multiple linear regression analyses were run to explore the associations between ATLG-S, HRHS, and MCQ-30.

Results Negative beliefs about thoughts and beliefs about the need to control thoughts were correlated with ATLG-S and HRHS scores; however, multiple linear regression analyses demonstrated that beliefs about the need to control thoughts and cognitive self-consciousness were associated with ATLG-S and HRHS scores after controlling for sociodemographic variables including age, gender, and education.

Conclusion We concluded that the beliefs about the need to control thoughts and cognitive self-consciousness may play a significant role in sexual stigma. Psychological techniques which are aimed at specific metacognitions and mindfulness may help reduce sexual prejudice among young adults.

Keywords Homonegativity · Sexual stigma · Sexual prejudice · LGBTI · Metacognitions

Introduction

Gay and lesbian terms refer to a sexual and/or romantic attraction, or sexual behavior, between members of the same sex or gender. Being gay or lesbian as a form of mental illness has been long abandoned by many societies, cultures, and organizations beneath the leadership of American Psychiatric Association (APA) (1980). The concept of homonegativity was initially described as the fear of being, on the part of heterosexuals, in proximity to gay men and lesbian women. This fear was also accompanied by hatred and intolerance of gay and lesbian individuals (Herek & McLemore, 2013). From when being gay or lesbian as a mental illness was removed from the Diagnostic and Statistical Manual of Mental Disorders (DSM), researchers started to increasingly focus on studying the adverse reactions of heterosexual individuals toward gay and lesbian individuals (Salvati & Chiorri, 2021). Some researchers began using the term “homonegativity” to also refer to any negative attitude, belief, or action towards these individuals (Herek, 2016; Herek & McLemore, 2013).

Cognitive Determinants of Sexual Stigma

According to the social cognitive theory of Bandura, it is proposed that individual’s behaviors are steered by cognitive processes relating to social practices (Bandura, 1986). Several studies have demonstrated the significant contribution of social cognitive mechanisms related to homonegativity (e.g., observation of dominant prejudiced groups, acquired behavior from peers’ homonegative exposure) in aggressive behaviors towards lesbian and gay individuals (Herek, 2000,
It has also been observed that negative attitudes can become “internalized” as beliefs that guide homonegative behavior (Poteat et al., 2011) with social cognitive capability appearing to be one of the determinants in altering these beliefs (Prati, 2012). O’Donohue and Caselles (1993) were among the first researchers to also propose that specific cognitions (e.g., “Being a gay/lesbian is an illness”) may be linked to homonegative behavior and attitudes. Other researchers have argued that such cognitions could be potential targets in the reduction of homonegative behavior and weakening of negative attitudes against gay men and lesbian women (Van de Ven et al., 1996).

**Metacognition and Its Possible Association with Sexual Stigma**

Recent conceptualizations of psychopathology have emphasized the role of metacognition in the genesis and perpetuation of emotion dysregulation (Spada & Wells, 2005, 2009; Spada et al., 2009, 2013a, b). Metacognition refers to the aspects of cognitive processing responsible for the monitoring, evaluation, interpretation, and regulation of the content of cognition (Wells, 2000). According to the metacognitive model of psychopathology (Wells & Matthews, 1994), metacognitions (or metacognitive beliefs) are central to the development and persistence of emotion dysregulation. Metacognitions refer to beliefs about the meaning of internal events (e.g., “I should be in control of my internal states at all times” and “Having thought X means I am weak-willed”) and ways of controlling such internal events (“If I worry, I will be prepared” and “Ruminating will help me find a solution”). It is purported that such beliefs are central to the initiation and perseveration of maladaptive coping strategies (thought suppression, rumination, worry, and threat monitoring) which, in turn, lead to emotion dysregulation and associated maladaptive behaviors.

Metacognitions have been examined using the Metacognitions Questionnaire (Cartwright-Hatton & Wells, 1997; Wells & Cartwright-Hatton, 2004) which assesses metacognitions through five factors: (i) positive beliefs about worry (beliefs that perseverative thinking is useful); (ii) negative beliefs about thoughts (beliefs that thoughts are uncontrollable and dangerous); (iii) cognitive confidence (beliefs in one’s own attention and memory); (iv) beliefs about the need to control thoughts; and (v) cognitive self-consciousness (beliefs about the tendency to self-focus attention and monitor thoughts). Support for the link between dimensions of the Metacognitions Questionnaire and psychopathology has come from a wide range of studies utilizing cross-sectional, longitudinal, and experimental designs (for a review see: Wells, 2013; Sun et al., 2017).

No research, to date, has examined the possible relationship between metacognitions and sexual stigma. According to findings in the literature, beliefs about the need to control thoughts may be of specific relevance in homonegative attitudes. Why would this be the case? Because this dimension of metacognitions refers to the extent to which an individual believes that upsetting and unwanted thoughts should be controlled (Wells & Matthews, 2015). Individuals who have experienced psychological difficulties (anxiety, low mood, and addictive behaviors) tend to endorse, very strongly, these beliefs which are associated with attempts at suppressing and/or eliminating thoughts from consciousness. However, attempting to control thoughts through suppression/elimination is dysfunctional and leads to a worsening of psychological distress (Wells & Carter, 2001). Beliefs about need to control thoughts have been identified in major mental disorders including schizophrenia, depression, anxiety disorders, eating disorders, and addictive behaviors (Aydın et al., 2019, 2020; Hamonniere & Varescon, 2018; Laghi et al., 2018; McDermott & Rushford, 2011; Spada et al., 2013a, b; Teasdale et al., 2002). In line with a metacognitive conceptualization (Wells, 2005), it could be hypothesized that individuals who believe that thoughts need to be controlled would be more likely to experience sexual prejudice because of attempts at suppressing and avoiding thoughts related to being gay and/or lesbian (e.g., being in the presence of a gay/lesbian, having thoughts and desires of being gay/lesbian, questioning one’s sexuality).

**Aims of the Study**

No study, to date, has examined the relationship between metacognitions and sexual stigma. Focusing on heterosexual oriented individuals’ awareness of their own thought processes and evaluating how their beliefs about their thinking may be linked to homonegative attitudes could open new avenues for research in the area. Poteat et al. (2013) highlight the significance of inclusive models while elucidating homonegative behavior and attitudes. These multifaceted models can account for a more comprehensive perspective on the interaction of factors associated with sexual stigma (Poteat et al., 2013), such as homonegativity was found to be stronger in older age groups relative to younger ones (Oksal, 2008), with males more prone to exhibit such attitudes compared to females (Vecho et al., 2019). Literature has also indicated that sexual prejudice decreases as individuals’ educational background improves (Bartos et al., 2014; Salvati et al., 2019). In the current study, we acknowledged the need for controlling these factors which have been shown to be salient factors in sexual prejudice. Therefore, we hypothesized that negative attitudes against gay and lesbian individuals would be associated with metacognitions; specifically, beliefs about the need to control thoughts after controlling age, gender, and education.
Methods

Participants and Procedure

Five hundred thirty-eight individuals completed the study. The data was obtained from Turkish individuals (age range 18–65) who voluntarily participated in the study. The research was advertised on the Internet and social media sites and conducted via an online survey platform. All individuals who participated in the study were informed about full confidentiality and about their right to withdraw their participation at any time. All participants provided informed consent for participation in the study. The study was approved by the Institutional Review Board of the International University of Sarajevo (03/06/2020; IUS-REC-01–894/2020). The mean age of the participants was 26.5 years (SD = 8.48 years). In the current study, 29.3% (n = 158) of the participants were male and 70.5% (n = 380) were female. The education level of participants was 15.4 (SD = 2.24) years.

Measures

The Attitudes Toward Lesbians and Gay Men-Short Version (ATLG-S; Duyan et al., 2004; Herek, 1984)

The ATLG consists of 20 items in total, ten items to measure attitudes toward gay men, and ten items to measure attitudes toward lesbian women. In the present study, the Turkish version of the ATLG-short version (ATLG-S) was used (Duyan et al., 2004). The ATLG-S consists of 10 items on differences between attitudes toward gay men (5 items) and lesbian women (5 items), e.g., (i) “A woman’s homosexuality should not be a cause for job discrimination in any situation;” and (ii) “I think male homosexuals are disgusting.” The measure uses a 5-point Likert-type scale that is rated from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate stronger negative attitudes toward gay and lesbian individuals. The validity and reliability study of ATLG-S was established in a Turkish sample, and it shows strong internal consistency (Cronbach’s α = 0.91; 0.94 in this study) and adequate construct validity (Duyan et al., 2004).

The Hudson and Ricketts Homophobia Scale (HRHS; Ricketts & Hudson, 1980; Sakalli & Ugurlu, 2002)

The HRHS consists of 25 items to measure sexual stigma. In the present study, the Turkish version of the HRHS was used (Sakalli & Ugurlu, 2002). One of the original items was excluded due to lack of reliability in Turkish samples. The measure uses a 6-point Likert-type scale that is rated from 1 (strongly disagree) to 6 (strongly agree). Three factors are assessed by the measure which include: (i) behavior/negative affect (e.g., “Gay people make me nervous”); (ii) affect/behavioral aggression (e.g., “I fear homosexual persons will make sexual advances towards me”); (iii) cognitive negativity (e.g., “Organizations which promote gay rights are necessary”). Higher scores indicate higher levels of sexual stigma as we utilized the overall score in our study. The validity and reliability study of HRHS was established in a Turkish sample, and it shows strong internal consistency (Cronbach’s α = 0.94; 0.95 in this study) and adequate construct validity (Sakalli & Ugurlu, 2002).

The Metacognitions Questionnaire (MCQ-30; Wells & Cartwright-Hatton, 2004; Tosun & Irak, 2008)

The MCQ-30 consists of 30 items to measure generic metacognitions in psychopathology. The MCQ-30 has been used extensively to determine the presence of metacognitions in both clinical and non-clinical populations (Spada et al., 2008). In the present study, the Turkish version of the MCQ-30 was used (Tosun & Irak, 2008). The measure uses 4-point Likert-type scale that is rated from 1 (do not agree) to 4 (agree very much). Five factors are assessed by the measure which include: (i) positive beliefs about worry (e.g., “Worrying helps me to get things sorted out in my mind”); (ii) negative beliefs about thoughts concerning danger and uncontrollability (e.g., “My worrying could make me go mad”); (iii) cognitive confidence (e.g., “I have little confidence in my memory for words and names”); (iv) beliefs about the need to control thoughts (e.g., “I should be in control of my thoughts all of the time”); and (v) cognitive self-consciousness (e.g., “I am constantly aware of my thinking”). Higher scores in MCQ-30 indicate more dysfunctional metacognitive beliefs.

Statistical analysis

Descriptive statistics were run for sociodemographic variables. Pearson bivariate correlations were used to identify the correlations between overall scores of ATLG-S, HRHS, and MCQ-30 subdimensions. A multiple linear regression analysis was then conducted to examine the associations between variables. Age, gender, and education variables were controlled in the multiple regression analysis, and metacognitions were entered one by one to the regression equation even they are found to be non-significant in correlational analyses due to theoretical relevance. Cohen’s $f^2$, which is appropriate for calculating the effect size within a regression model, was computed, and according to Cohen’s guidelines $f^2 ≥ .02$, $f^2 ≥ .15$, and $f^2 ≥ .35$ represent small, medium, and large effect sizes, respectively (Cohen, 1988). The level of statistical significance ($p$) was adjusted to < .05, and all analyses were
conducted using the Statistical Package for Social Sciences (SPSS) version 22.0 (IBM Corp., 2013 Armonk, NY).

Results

An inspection of skewness and kurtosis values suggested that all measurements were overall normally distributed (being included in the conventional cut off of ±3 [e.g., Mayers, 2013]). As a result, a series of Pearson product-moment correlation analyses were conducted on the data. The correlations between ATLG-S scores, HRHS scores, and MCQ-30 scores revealed that ATLG-S and HRHS were positively correlated negative beliefs about thoughts and beliefs about the need to control thoughts. Additionally, ATLG-S and HRHS were highly correlated with each other (see Table 1).

| Variables     | Standardized beta | t     | p     | R²  | Confidence interval |
|---------------|-------------------|-------|-------|-----|--------------------|
| Age           | .199              | 4.696 | <.001 | .12 | 1.55               |
| Gender        | -.153             | -3.679| <.001 | .12 | -5.861             |
| Education     | -.046             | -1.072| .284  | -.734| -.417             |
| MCQ-30-PBW    | -.048             | -1.001| .318  | .421 | .137              |
| MCQ-30-NBT    | .018              | .294  | .769  | -.309| .417              |
| MCQ-30-NCT    | .247              | 3.819 | <.001 | .858| 1.202             |
| MCQ-30-CSC    | -.124             | -2.076| .038  | -.971| .027              |
| MCQ-30-CC     | .003              | .056  | .955  | -.257| .272              |

ATLG-S overall score of Attitudes Towards Lesbians and Gay Men Scale-Short Form, HRHS overall score of Hudson and Rickett’s Homophobia Scale, MCQ-30-PBW Metacognitions Questionnaire 30 — positive beliefs about worry, MCQ-30-NBT Metacognitions Questionnaire 30 — negative beliefs about thoughts concerning uncontrollability and danger, MCQ-30-NCT Metacognitions Questionnaire 30 — beliefs about the need to control thoughts, MCQ-30-CSC Metacognitions Questionnaire 30 — cognitive self-consciousness, MCQ-30-CC Metacognitions Questionnaire 30 — cognitive confidence Significant p values are shown in bold emphasis

The Associations Between ATLG-S and MCQ-30

The beliefs about the need to control thoughts and cognitive self-consciousness subdimensions of the MCQ-30 were significantly associated with overall score of ATLG-S ($F(8529) = 8.96; p < .001$) accounting for 12% of the variance after controlling for age, gender, and education. Overall model showed a medium effect size ($f^2 ≥ .18$). See Table 2.

The Associations Between HRHS and MCQ-30

The beliefs about the need to control thoughts and cognitive self-consciousness subdimensions of the MCQ-30 were also significantly associated with overall score of HRHS ($F(8529) = 11.89; p < .001$) accounting for 15% of the variance after controlling for age, gender, and education. The overall model showed a medium effect size ($f^2 ≥ .21$). See Table 3.

Table 1 Correlation coefficients between ATLG-S, HRHS, and MCQ-30 subdimensions

|                  | M     | SD    | ATLG-S | HRHS  | MCQ-30-PBW | MCQ-30-NBT | MCQ-30-NCT | MCQ-30-CC | MCQ-30-CSC |
|------------------|-------|-------|--------|-------|------------|------------|------------|-----------|------------|
| ATLG-S overall   | 28.27 | 11.41 | .88**  | .06   | .10*       | .18**      | .01        | .01       | -.01       |
| HRHS overall     | 71.50 | 33.03 | 1.07   | .14** | .21**      | .03        | .01        |           |            |
| MCQ-30-PBW       | 13.85 | 3.88  | .34**  | .50** | .21**      | .40**      |            |           |            |
| MCQ-30-NBT       | 13.94 | 3.83  | .70**  | .30** | .61**      |            |            |           |            |
| MCQ-30-NCT       | 14.35 | 3.50  | 1.30** | .58** |            |            |            |           |            |
| MCQ-30-CC        | 14.11 | 3.94  | .47**  |      |            |            |            |           |            |
| MCQ-30-CSC       | 16.39 | 2.82  | 1.00   |      |            |            |            |           |            |

*p < .05; **p < .01

Table 2 The associations between ATLG-S and MCQ-30 subdimensions adjusted for age, gender and education of the participants
the perception that they are uncontrollable. Consequently, an increase in unwanted thoughts and the strengthening of because these maladaptive forms of coping will result in (sexuality, etc.) which will backfire. They will backfire desires about gay/lesbian individuals, questioning one’s of a gay/lesbian individual, having thoughts and ing unwanted thoughts (possibly about being in the pres- to the activation of attempts at suppressing and avoid -nal metacognitive framework (Wells, 2005), that beliefs about the need to control thoughts appear to play a role in homonegative attitudes because they are linked to the activation of attempts at suppressing and avoiding unwanted thoughts (possibly about being in the pres- ence of a gay/lesbian individual, having thoughts and desires about gay/lesbian individuals, questioning one’s sexuality, etc.) which will backfire. They will backfire because these maladaptive forms of coping will result in an increase in unwanted thoughts and the strengthening of the perception that they are uncontrollable. Consequently, intolerance toward gay and lesbian individuals (and there- fore the presence of strong homonegative attitudes) may arise because of the fear of being confronted with triggers for the activation of such thoughts (i.e., individuals who are gay/lesbian).

Another intriguing finding of our study is the signifi- cant association between cognitive self-consciousness and homonegativity. Cognitive self-consciousness refers to individual’s self-monitoring of the beliefs and preoc- upation with own thoughts (e.g., ‘I constantly examine my thoughts’). In metacognitive model, cognitive self-consciousness plays a role in awareness of other dysfunctional metacognitive beliefs which in turn, this constant monitoring may yield the sense of uncontrollability over intrusive thoughts (Cartwright-Hatton & Wells, 1997; Wells & Matthews, 1996). According to our results, we may imply that the individuals with lower levels of cognitive self-consciousness may show higher sexual stigma toward gay and lesbian individuals. Hence, when an individual is not fully preoccupied with own thoughts, he/she may tend to have more homonegativity. The association between cognitive self-consciousness and sexual stigma is difficult to interpret due to the uncertainty of the causal direction. However, one possible explanation for this relationship may be related to self-criticism. We assume that individuals with higher cognitive self-consciousness may be more self-critical (Evans et al., 2009), and this may lead a decrease in negative thoughts toward gay and lesbian individuals since one is preoccupied with own thoughts and self.

The present study offered initial support for the possible interaction between metacognition and sexual stigma which may lend some theoretical and clinical implications for reducing the negative attitudes toward gay and lesbian individuals. The beliefs about the need to control thoughts and cognitive self-consciousness may be fundamental

| Variables       | Standardized beta | t    | p     | R^2 | Confidence intervals |
|-----------------|-------------------|------|-------|-----|----------------------|
| HRHS Age        | .220              | 5.307| < .001| .15 | [.544 1.182]         |
| HRHS Gender     | −.172             | −4.237| < .001| −18.428| −6.753             |
| HRHS Education  | −.033             | −.795| .427  |     | [−1.908 .809]       |
| HRHS MCQ-30-PBW | −.053             | −1.119| .263  |     | [−1.254 .344]       |
| HRHS MCQ-30-NBT | .075              | 1.238| .216  |     | [−.384 1.694]       |
| HRHS MCQ-30-NCT | .251              | 3.962| < .001|     | [1.188 3.524]       |
| HRHS MCQ-30-CSC | −.156             | −2.674| .008  |     | [−3.188 −.488]      |
| HRHS MCQ-30-CC  | .029              | .624 | .533  |     | [−.517 .997]        |

### Discussion

The present study examined the associations between meta- cognitions and sexual stigma controlling for several sociode- mographic variables. The results demonstrated that there is association between homonegativity and the need to control thoughts and cognitive self-consciousness after controlling age, gender, and education variables. In more detail, people who exhibit more sexual stigma tend to show more dysfunc- tional beliefs about the need to control thoughts and they have less cognitive self-consciousness.

The literature is clear in having shown that individuals who tend to have psychological problems, such as anxiety and low mood, hold increased beliefs about the need to control thoughts which are, in turn, linked to maladap- tive forms of coping (sometimes referred to as “mental control strategies”) including thought suppression, rumin- ation, worry, and threat monitoring (Aydin et al., 2019, 2020; Hamonniere & Varescon, 2018; Laghi et al., 2018; McDermott & Rushford, 2011; Spada et al., 2013a, b; Teasdale et al., 2002). Maladaptive forms of coping will bring to unwanted thoughts becoming more persistent, as well as strengthening negative beliefs about thoughts regarding their uncontrollability and danger (which we found to be correlated with sexual stigma). It follows, within a metacognitive framework (Wells, 2005), that beliefs about the need to control thoughts appear to play a role in homonegative attitudes because they are linked to the activation of attempts at suppressing and avoid- ing unwanted thoughts (possibly about being in the pres- ence of a gay/lesbian individual, having thoughts and desires about gay/lesbian individuals, questioning one’s sexuality, etc.) which will backfire. They will backfire because these maladaptive forms of coping will result in an increase in unwanted thoughts and the strengthening of the perception that they are uncontrollable. Consequently,

### Table 3 The associations between HRHS and MCQ-30 subdimensions adjusted for age, gender and education of the participants

| Variables       | Standardized beta | t    | p     | R^2 | Confidence intervals |
|-----------------|-------------------|------|-------|-----|----------------------|
| HRHS Age        | .220              | 5.307| < .001| .15 | [.544 1.182]         |
| HRHS Gender     | −.172             | −4.237| < .001| −18.428| −6.753             |
| HRHS Education  | −.033             | −.795| .427  |     | [−1.908 .809]       |
| HRHS MCQ-30-PBW | −.053             | −1.119| .263  |     | [−1.254 .344]       |
| HRHS MCQ-30-NBT | .075              | 1.238| .216  |     | [−.384 1.694]       |
| HRHS MCQ-30-NCT | .251              | 3.962| < .001|     | [1.188 3.524]       |
| HRHS MCQ-30-CSC | −.156             | −2.674| .008  |     | [−3.188 −.488]      |
| HRHS MCQ-30-CC  | .029              | .624 | .533  |     | [−.517 .997]        |

HRHS overall score of Hudson and Rickett’s Homophobia Scale, MCQ-30-PBW Metacognitions Questionnaire 30 — positive beliefs about worry, MCQ-30-NBT Metacognitions Questionnaire 30 — negative beliefs about thoughts concerning uncontrollability and danger, MCQ-30-NCT Metacognitions Questionnaire 30 — beliefs about the need to control thoughts, MCQ-30-CSC Metacognitions Questionnaire 30 — cognitive self-consciousness, MCQ-30-CC Metacognitions Questionnaire 30 — cognitive confidence Significant p values are shown in bold emphasis
cognitive processes in homonegativity among young adults. Thus, it emphasizes the convenience of prospective research in therapeutic interventions adjusting dysfunctional metacognitive beliefs that increase the homonegativity. Furthermore, specific types of metacognitive beliefs found to be associated with sexual stigma in our study may give practitioners a context for the emergence of these negative attitudes and permit for a more tailored intervention. Several studies have investigated the efficacy of different intervention techniques aimed at reducing sexual stigma and weakening negative attitudes toward gay and lesbian individuals (Van de Ven et al., 1996). For instance, researchers developed a teaching kit for high school students, with positive outcomes reported through a reduction in sexual prejudice levels arising from the alteration of cognition, behavioral intentions, and affective responses (Van de Ven, 1996). Since these negative attitudes may be altered by different approaches, we may suggest that clinicians may consider integrating interventions that target metacognitions such as attention training technique, reappraisal of metacognitions and mindfulness such as detached mindfulness and mindfulness-based stress reduction, in the form of metacognitive therapy to intervene sexual prejudice in heterosexual people, but also internalized stigma among gay and lesbian individuals (Fisher & Wells, 2008; Salvati & Chiorri, 2021; Salvati et al., 2019; Wells, 2011; Wells & Fisher, 2011).

This study suffers from the typical limitations of cross-sectional designs based on self-report data such as possible errors in measurement and the preclusion of causal inferences. Furthermore, the presence of concurrent psychological disorder was not assessed, so findings may be attributable to this variable. Finally, generalizability of the findings may be limited by the sample characteristics (i.e., younger age, predominantly female) and the variables (e.g., religion, ethnicity, cultural factors) that we did not assess in the present study. Directions for future research include investigating possible causal relationships between metacognitions and sexual stigma through longitudinal designs. Elucidating the nature of the observed relationships using ecological momentary assessment and experimental designs, which will disentangle antecedents from consequences and provide information regarding the accuracy of metacognitions in relation to homonegativity, would also be needed. To our knowledge, this is the first study to examine the role of metacognitions in sexual stigma; therefore, future longitudinal studies that oversee these limitations are warranted for confirmation of our findings.

Author Contribution All the authors are responsible for the study concept and design. OA and MMS wrote the first draft of the manuscript. AK, ZC, ESK, and PUA collected the data and performed the analyses. OA and PUA contributed to the interpretation of the data. All the authors critically reviewed and approved the final version of the manuscript.

Data Availability Raw data and analyses are available upon request.

Declarations

Ethical Standards This study did not involve human and/or animal experimentation.

Conflict of Interest The authors declare no competing interests.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/.

References

American Psychiatric Association (APA). (1980). Diagnostic and Statistical Manual of Mental Disorders, 3rd edition (DSM-III). Washington, DC: American Psychiatric Press.

Aydın, O., Balıkçı, K., Çökmüş, F. P., & Ünal-Aydın, P. (2019). The evaluation of metacognitive beliefs and emotion recognition in panic disorder and generalized anxiety disorder: Effects on symptoms and comparison with healthy control. Nordic Journal of Psychiatry, 73(4–5), 293–301. https://doi.org/10.1080/08039488.2019.1623317

Aydın, O., Güçlü, M., Ünal-Aydın, P., & Spada, M. M. (2020). Metacognitions and emotion recognition in internet gaming disorder among adolescents. Addictive Behaviors Reports, 12, 100296. https://doi.org/10.1016/j.jabrep.2020.100299

Bandura, A. (1986). Fearful Expectations and Avoidant Actions as Coefficients of Perceived Self-Inefficacy. https://doi.org/10.1037/0003-066X.41.12.1389

Bartos, S. E., Berger, I., & Hegarty, P. (2014). Interventions to reduce sexual prejudice: A study-space analysis and meta-analytic review. The Journal of Sex Research, 51(4), 363–382. https://doi.org/10.1080/00224499.2013.871625

Cartwright-Hatton, S., & Wells, A. (1997). Beliefs about worry and intrusions: The Meta-Cognitions Questionnaire and its correlates. Journal of Anxiety Disorders, 11(3), 279–296. https://doi.org/10.1016/S0887-6185(97)00011-X

Cohen, J. (1988). Statistical power analysis for the behavioral sciences. Lawrence Erlbaum Associates.

Duyan, V., Gelbal, S., & Duyan, V. (2004). Lezbiyen ve geylere yönelik tutum (LGYT) ölçeği: Güvenirlik ve geçerlik çalışması. HIV/AIDS Dergisi, 7(3), 106–112.

Evans, D. R., Baer, R. A., & Segerstrom, S. C. (2009). The effects of mindfulness and self-consciousness on persistence. Personality and Individual Differences, 47(4), 379–382. https://doi.org/10.1016/j.paid.2009.03.026

Fisher, P. L., & Wells, A. (2008). Metacognitive therapy for obsessive-compulsive disorder: A case series. Journal of Behavior Therapy and Experimental Psychiatry, 39(2), 117–132. https://doi.org/10.1016/j.jbtep.2006.12.001
Wells, A., & Cartwright-Hatton, S. (2004). A short form of the Meta-cognitions Questionnaire: Properties of the MCQ-30. *Behaviour Research and Therapy, 42*(4), 385–396. https://doi.org/10.1016/S0005-7967(03)00147-5

Wells, A., & Fisher, P. (2011). Meta-cognitive therapy without meta-cognition: A case of ADHD. *American Journal of Psychiatry, 168*(3), 327–327. https://doi.org/10.1176/appi.ajp.2010.10101467

Wells, A., & Matthews, G. (1994). Self-consciousness and cognitive failures as predictors of coping in stressful episodes. *Cognition & Emotion, 8*(3), 279–295. https://doi.org/10.1080/02699939408408942

Wells, A., & Matthews, G. (1996). Modelling cognition in emotional disorder: The S-REF model. *Behaviour Research and Therapy, 34*(11–12), 881–888. https://doi.org/10.1016/S0005-7967(96)00050-2

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.