The Associations between Pornography Addiction and Moral Judgement among Youth in Malaysia

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Abstract
Pornography addiction has become a widespread problem given the issues of mental health problems and sexually unappealing acts associated with it. The dominant explanation for this problem is how pornography is able to affect one's moral foundation moderated by other factors such as personality, political ideology and also one's age. However, the limitations in this study impeded this study to have a better and accurate result such as the use of convenience sampling, acquiescence bias, low number of respondents and inability to determine the causality of this study. In this cross-sectional study, we used a convenience sampling method to collect data from respondents that were young adults. Then utilized the hierarchical multiple regression analysis and Pearson correlation to find the association between pornography addiction and one's moral judgement. One-Way ANOVA test and T-test was used to investigate the role of demographic factors i.e. age and gender upon the two dominant variables. These research findings indicate association of pornography addiction upon one's moral foundation i.e. the Betrayal/Loyalty, Subversion/Authority and Degradation/Sanctity. There were differences of pornography addiction based on age and gender. Additionally, the difference was found on moral judgment of Loyalty/Betrayal between male and female. Implications for future researchers who study pornography to use these results to expand the literature. Eventually, the impact of pornography addiction on people must be underlined so that it will be recognized at the national level.
Keywords: Pornography Addiction, Moral Judgement, Youth, Malaysia

Introduction
Pornography is still an understudied subject-matter in Malaysia hence this study is the opportunity to expand this research (Ali et al., 2021). Other studies in Malaysia has also indicated the taboo of pornography such as by (Sarnon et al., 2020). Countries in Europe such as Poland also still has certain areas that has a great level of sex taboos due to sociocultural backgrounds such as religious backgrounds (Martyniuk et al., 2015). What adds to this problem is the widespread, fast and easy accessibility to sexual materials on the Internet, without much restrictions (Alavi et al., 2012; Arsad et al., 2021). The internet addiction problem also deteriorates the situation as the factors that brings forth this problem is similar

to pornography such as the vulnerabilities in terms of hormonal system and also personality types which leads to its increased use of it (Cash et al., 2012).

Pornography has a lot of detrimental effects psychologically as it has always been associated with one's mental health. People who watch pornography frequently are more associated with having depressive symptoms (Willoughby et al., 2019). These depressive symptoms are also moderated by moral beliefs such as people with higher moral regard for religion will tend to be engulfed by a moral uneasiness when watching pornography which entails social anxiety (Grubbs et al., 2019). In addition, sexual shame also played a moderating role for their depression whereby the former causes a person to attribute the blame to others for their consumption of pornography (Maddock et al., 2019). Other studies also showed result of the association between pornography and depression that was also mediated by religious beliefs (Borgogna & Aita, 2019; Guidry et al., 2020). Alluding to that, a considerably high levels amount of depression was also found among 56.6% that reported lifetime pornography use in the United States (Camilleri et al., 2021).

Moreover, a cross sectional study done in Australia and New Zealand showed that frequent pornography consumption, after going through a multivariate analysis upon 2733 sexual minority males, has been disclosed to be associated with the dissatisfaction of their body (Griffiths et al., 2018). To the extent that, it encourages those males to take anabolic steroids if the person is a professional pornography viewer (Griffiths et al., 2018). Meanwhile, a study done on a sample of Italian gays and bisexual men, pornography is also associated with body image whereby having a negative body image plays a significant role in causing self-perceived problematic pornography usage and depression (Sommantico et al., 2021). A study also was done on the correlation between the frequency of pornography use and self-esteem among a sample of women in Zagreb and there was a positive association between the variables (Kohut & Stulhofer, 2018). In relationship to the domain of psychopathology, a cross sectional study of 30 participants with ADHD and 55 control participants, brought forth a result showing that individuals with ADHD score highly for pornography use and suggested their addiction in pornography (Niazof et al., 2019). It is revealed that, approximately 34% of the variance is explained by ADHD score. This could mean that pornography is a possible risk factor for a certain group of individuals. Furthermore, in the criminal domain of sexuality, convicted sex offenders have their psychosocial background examined and it was found that pornography use is a contributory risk factor for the associated psychotic acts committed by the convicts such as sexual fantasy, paraphilias, violence and negative gender-based attitudes (Tiefenwerth, 2007). In addition, through an in-depth interview with a sample of young Muslim adults, it was revealed that watching too many pornographic videos makes them feel like wanting to engage in sexual activities, and have uncontrollable desire with their partner (Ali & Aun, 2022). This could possibly lead to unwanted teenage pregnancy. Moreover, watching pornography is one of the motivational factors of Muslim rape convicted offenders, besides widely available sexual stimulants, extramarital sex and sexy women (Ab Rahman, 2021). These showed that pornography addiction can lead to various negative impact in many individuals.

Personality also plays a role in the development of pornography addiction whereby for men generally, using the Big Five Model, neuroticism and extraversion traits exacerbated their Pornography Problematic Viewing and functional problems whereby both of those traits interacted. Control difficulties and avoidance of negative emotions which leads pornography consumption is also caused by the interaction between high levels of extraversion and low levels of conscientiousness (Borgogna & Aita, 2019). Compulsive pornography use is also

negatively correlated with agreeableness and conscientiousness as found by (Egan and Parmar, 2013). However, Alexandraki et al (2018) found that the openness dimension seems to be reducing the problem of pornography addiction. Other studies also supported the result of possessing lower agreeableness to predict pornography addiction but having it replaced with compulsive sexual behavior as it is closely related with the former (Efrati & Gola, 2018). However, for women, the interaction between neuroticism and high levels of openness, and also between neuroticism and low levels of conscientiousness contributed to the avoidance of negative emotions which is an important variable for problematic pornography consumption (Borgogna & Aita, 2019). Using a different personality test such as the HEXACO model subscale which is the honest-humility scale, humility, and honesty correlates strongly and negatively with one's exposure of pornography (Muris et al., 2020). This scale also possesses predictive power towards sociosexual behavior (Bourdage et al., 2007). Alluding to that, from the lens of evolutionary psychology, pornography consumption is an important factor to increase one's sex drive and improve their sexual performance before adopting a sociosexual behavior or in other words, a short-term mating strategy (Burtaverde et al., 2021).

In addition, when it comes to social relationships, pornography exposure has been associated with Teen Dating Violence (TDV) in Grade 10 high school students (Rostad et al., 2019). An exposure to violent pornography became a significant predictor for subjects to become a perpetrator for Teen Dating Violence non-sexually. However, when age, history of expulsion, heavy drinking, rape myth acceptance and gender equitable attitudes are controlled, subject's exposure to violent pornography are associated positively for promoting sexual Teen dating violence. However, for females, after controlling for the same covariates, when subjects are exposed to violent pornography, it is estimated that female participants will be more likely to be under the victimization of sexual TDV (Rostad, et al., 2019). The problem of Teen Dating Violence has also been declared a public health problem in the U.S (Kann et al., 2016). Teen Dating Violence is likened to the authority moral foundation given its intuition to exercise authority unto others through the means of violence in some cases (Rubio-Garay et al., 2019; Vecina, & Chacon, 2021). A conclusion can be made that pornography is able to exacerbate one's authority moral foundation to commit violence.

In relationship to that, adolescents that intentionally watch pornography will have a six times likelihood of committing sexual aggression which becomes a risk factor for them to commit violence toward their dating partners (Ybarra et al., 2011). All of this can be based on the sexual script acquisition, activation, and application model (Wright, & Tokunaga, 2016), in which this model can be applied on the context of antisocial adolescents whereby with their existing scripts, when watching pornography, they will follow the depiction of violence in pornography which exacerbates the act of violence towards their partner. In addition, sexual harassment supports this model via a longitudinal study whereby media with explicit sexual contents is associated with a higher sexual harassment perpetration (Brown & L' Engle, 2009).

On the other hand, there are demographic factors that lead individuals to consume pornography. A study in Arab countries showed that the predictors were associated with gender such as males, young age and poor educational attainment (Abd Eljawad et al., 2021). Moreover, less quality spent with family is associated with higher use of pornography and an increase of experience of vaginal, oral, and anal sex (Astle et al., 2020). People that have traumatic experiences have a higher potential to develop addictive disorder such as alcohol use disorder and pornography addiction (Levin et al., 2021). Even in the genetics domain, addictive behavior can also be transmitted via the parents to the children such as dependence

on opioids, cocaine, etc (Merikangas et al., 1998). This means that pornography addiction could also be inherited because its neural and hormonal pathways of addiction is almost the same with opioids according to the Anti-Reward Theory (Love et al., 2015).

In relation to pornography addiction, its biological basis should also be used to understand how it is able to change a person's behavior whereby it is divided into three stages such as Binge/Intoxication stage, Withdrawal stage and Preoccupation stage (Love et al., 2015). According to the authors, the first stage is positive reinforcement, and the surge of dopamine along with its effect of decreasing the reward threshold. Next, the second stage is whereby the amygdala is activated whenever someone is distressed causing the reward threshold to increase as an addict turns to be compulsive. Finally, the third stage is where the addict starts to crave for it, having exacerbating effects on the addict's brain as impairments occur at the prefrontal cortex, hence one's executive function deteriorates (Love et al., 2015). In relationship to that, the dorsal striatum also plays a role in craving for pornography as the dorsal striatum is crucial for habit learning (Yin et al., 2005). This brain region is also associated structurally with the ventral striatum for the addiction to occur which means the ventral striatum will also be affected when watching pornography (Koob, & Volkow, 2010). This is proved by the alteration in the ventral striatum activity as subjects watches the pornographic images (Brand et al., 2016). Furthermore, when drugs were tested on animals by which exposing drugs repeatedly in the long run will automatically increase its dopamine, supported by the Incentive Salience Theory, whereby a transition from "liking" to mere "wanting" happens in which a person is motivated to adjust his desire for cues that are salient such as pornography (Berridge & Robinson, 2016). Factors that increase one's "wanting" could also be due to emotional excitement as well rather than just stress only (Anselme & Robinson, 2016).

The Association between Pornography Addiction and Moral Judgement
As already explained regarding the circuitry of its addiction, the factors and the impacts, there is also an indirect association with one's moral development which is relevant to this study. The Moral Foundation Theory would be used as a measurement for an individual's moral judgment (Graham et al., 2013). It is a Five-Factor Model that was theorized to contain 5 dimensions which are Care/Harm, Fairness/Cheating, Loyalty/ Betrayal, Authority/Subversion and Sanctity/Degradation.These five moral foundations are conceptualized as moral intuitions that are drafted in our consciousness and are developed in every individual by experiences making one's moral foundation more salient (Graham et al., 2013). For instance, children will have their Harm/Care foundation more salient when watching characters in movies portraying characters exercising the act of compassion for people that are weak (Cingel & Krcmar, 2020). There are also other studies that show the influence of media on one's children's moral foundation according to the moderate discrepancy hypothesis (Valkenburg & Peter, 2013). This hypothesis elucidates that children will not consume media that does not tally with their developmental level hence, e.g children who are already having sexual inclination due to the explicit contents of the media, the former will be exacerbated by the use of pornography since pornography affects their sexuality. In relationship to that, using the General Aggression Model framework that holds three aspects i.e., cognitive, affective and arousal processes, children who play violent video games, a negative association was found to be with the children's perspective taking and ability to sympathize (Vieira & Krcmar, 2011). This is reinforced by another study that states, violent video games are able to inculcate aggressive thoughts (Anderson & Bushman, 2001). Likewise, violent pornography

increases one's sexual arousal towards depictions of victims being raped (Pollard, 1995). Hence, it could indirectly decrease one's care foundation given the less consideration of the emotional state by the violent pornography consumers of the victim (Graham et al., 2013).

Next, there are also other studies that provides empirical evidence of the indirect association between pornography addiction and one's moral foundation. A meta-analysis of pornography consumption has been found to be correlated positively and highly with actual acts of sexual aggression, acceptance of rape myths, the proclivity to sexual harass and also interpersonal violence (Wright et al., 2016) These inclinations are obviously and directly linked to a state of one's weak ability to have empathy and care for others thus it is logical to have lower scores in the Harm/Care foundation (Dawson et al., 2021). On the other hand, interestingly, people who were to score high in the rape myth acceptance, scored higher in the Loyalty/Betrayal foundation as a study done to explore the moral foundations of interveners and non-interveners when encountered with a sexual assault (Gable et al., 2021). Therefore, a hypothesis can be posited that one's pornography consumption affects indirectly one's loyalty/betrayal foundation due to direct effect of pornography consumption towards one's acceptance of rape myths. This could also be supported by evidence that people who score highly in the Betrayal/Loyalty foundation are exacerbated by their high score in the Dark Triad Personality traits such as Machiavellianism, psychopathy, and narcissism but the Moral Foundation Questionnaire wasn't used as an instrument instead a scale to measure one's conservatism was used (Arvan, 2013). People with strong conservative values favors highly on average the Betrayal/Loyalty foundation (Graham et al., 2013). All in all, pornography consumption and Betrayal/Loyalty foundation affects one another by certain moderators such as the Dark Triad personality and also one's political ideology such as conservatism. Moreover, for the aspect of Degradation/Sanctity dimension, sexual disgust is a significant moderator for one's pornography consumption and its effect towards the former dimension (Crosby et al., 2020). It depends on the individual's type of sexual content that they watch. For instance, if someone has a low sexual disgust for bondage, discipline, dominance and submission, sadomasochism (BDSM) i.e sex that involves coercion, which is uploaded a lot in the best-selling porn websites, their moral sense for the purity of the individual is low (Love, et al., 2020). The hedonism that is portrayed by pornography consumers is a showcase of low-self-determination because they are merely addicted to it without actually liking it as a hobby (Berridge & Robinson, 2016).

Furthermore, for the fairness/cheating dimension, pornography influences a person to be more sexist and hostile towards women which is directly an act of unfairness (Mikorski & Szymanski, 2016). A longitudinal study also showed that as you age, adolescents are more exposed to violence-themed and dominance-themed pornography, an antithesis to the concept of fairness (Vandenbosch, 2015). This is because it contradicts the concept of gender equality as it encourages sexual discrimination (Dworkin & MacKinnon, 1988). In addition, using the theory of sexual scripts, people will derive their sexuality from what they acquired from pornography. This has caused pornography to be a moderating role to cause the objectification of women by men that watches violent pornography (Sun et al., 2016). A gender-schematic study was also done and the result showed that cognitive sexism along with behavioral sexism was found to be caused by higher exposure to pornography (Mckenzie-Mohr & Zanna, 1990). Finally, when pornographic content is examined for its sexual violence and aggression, it also involves the element of degradation and dominance (Gosset & Byrne, 2002). Both elements have the potential to decrease not only one's moral intuition for fairness but also sanctity. This is supported by the cognitive script and sexual script theory as

their understanding of sexuality is shaped, developed, hence emulating the behaviors portrayed in media, which in this case, the violence in pornographic content (Simon & Gagnon, 2003; Sun et al., 2016).

Gender and Age differences in Pornography Addiction and Moral Judgement
Besides that, it is important to note that a prevalence of pornography consumption difference between men and women in Danish adult is huge whereby men scored higher in their prevalence of pornography consumption (Hald, 2006). Even in romantic relationships whereby two partners have a higher acceptance of the use of pornography, pornography consumption is still higher among men compared to women (Willoughby et al., 2019). There is also different behavioral outcomes by gender among heterosexual couples due to use of pornography whereby a decrement in sexual desires for females while an increased engagement in sexual activities for men (Grov et al., 2011). Appealing to this study, men and women differ by their engagement based on categories. It is found that men engage in solitary-arousal and partnered-arousal frequently compared to women (Shaughnessy et al., 2011). This could be explained by males' inclination for a short-term mating strategy as they seek easy access to physical attractiveness of the women's body (Buss & Schmitt, 1993). It can also be mediated by personality difference as men who consumes pornography are higher in openness to experience than women which drives them to be more curious of the pornographic content (Shimoni et al., 2018).

Next, the gender differences in the Moral Foundation Theory, it is more apparent for the Betrayal/Loyalty foundation as it is more appealing to men than women significantly. As conducted by the Royal Publishing Society, when the study is replicated in non-WEIRD and collectivist countries, the Loyalty foundation is stronger for men compared in WEIRD countries (Atari et al., 2020). This is driven by the differences in political attitudes as in a cross-sectional study, U.S men are appealed towards inequality and social dominance which is highly oriented toward conservatism (Pratto et al., 1997). This gender difference of Loyalty foundation is also reflected in the orientation of men to believe that shall sexually dominate women (Rosenthal et al., 2012).

Finally, for the factor of age in one's pornography addiction, it has been linked to studies such as the development of the adolescents' brain whereby the prefrontal cortex is still in a maturing phase and also the dopamine system is overactivated (Brown & Wisco, 2019). In addition, they are also more likely to engage in risk-taking behaviors as they are motivated to seek for novelty and new experiences (Steinberg, 2008) Moreover, the perception of sexuality among 19 years old are also vague during that phase of their life hence with additional motivation for something salient, they resort to the Internet to understand their sexuality by watching sexually explicit contents such as pornography (Kar et al., 2015). The Sexual Health Model can be used to understand further how sexual pleasure influence young people to watch pornography as adolescents seek to understand their sexual anatomy, so they watch pornography to have a feeling that they have control over their body as they learn what do they find pleasurable or vice versa (Coleman, 2003; Robinson et al., 2002). The studies mentioned are in-depth research on how adolescents and young adults might differ in their view of pornography.

Then, for the age differences that explains one's moral foundation can be found in studies such as a meta-analytic approach which explains one's mean age and ideology explains about 40% of the variability for the correlation between age and the Loyalty/Betrayal

Foundation (Castilla-Estevez, & Blazquez-Rincon, 2021). Moreover, Kohlberg's Theory of Moral Development asserts also that as when a person reach adulthood they reach a stage where they cognitively start to question social norms and authority i.e the Post-Conventional stage which can encourage a person to go against the intuition for loyalty towards a group for the group can have morally wrong inclinations (Kohlberg, 1969). However, as a person increases in age into adulthood beginning from being an adolescent, authority and loyalty foundation becomes more pronounced in a person due to the work life they adopt (Rai & Fiske, 2011). This can be understood that one's age is important for one's social cognition

In summary, the studies mentioned above for the association between pornography addiction and moral judgement is mediated by other factors as well, such as personality, religious orientation, sexual disgust, etc. These past research fuels the objective of examining the association between pornography addiction and moral judgment. The relation between demographic factors i.e. age and gender differences has been found to play an integral role on one's moral intuition and pornography addiction as based on past research. For gender differences, males are consistently higher in their pornography consumption and exposure compared to women, especially in liberal societies. On the other hand, for the age factor, within the age range of the young adults, as it increases, pornography consumption increases implying a risk factor for pornography addiction. Moreover, for the moral foundation, gender plays a role generally by the research stating that females are higher in the Careness, Fairness and Sanctity while males favors highly the two binding foundations i.e Loyalty and Authority dimension group on average for both. Age also plays a role in affecting one's moral foundation as some moral foundations become more salient as they reach adulthood, and some don't. Hence, the objectives of this study is to investigate:

* The difference of demographic factors i.e age and gender on one's pornography addiction and moral judgement
* The relationship between pornography addiction on one's moral judgement

Methodology
The research involved a quantitative method with a cross-sectional design. The questionnaires measured pornography addiction and moral judgement among youth in Malaysia. The consent has been received by the participants and they are aware that their responses are remain confidential and their identity anonymous.

Participants
A total of 208 youth completed the survey. Participant recruitment was via convenient sampling. The main inclusion criterion was that the participants must be in the age range of 18 to 24. This age range is determined as such because the prevalence of drug abuse, substance disorder, internet addiction and the adverse psychological impacts due to pornography is high among this age (Setyawati et al., 2020). And   the majority of the respondents were male (105, 50.5%), and 19 years old participants (103, 49.5%).

Table 1
Frequencies of demographic information

Demographic information	Total	Percentage (%)
Gender		
Male	105	50.5
Female	103	49.5
Age		
18	10	4.8
19	103	49.5
20	73	35.1
21 and above	22	10.6

Measurements
This research consists of three sections (a) demographic information, (b) pornography addiction (c) moral foundation. The participants are required to answer the questionnaires regarding their demographic information i.e gender, age.

Meanwhile, the Porn Craving Questionnaire was used to measure the respondent's porn addiction (Kraus & Rosenberg, 2014). This scale consists of 12 items with a Likert-Scale of 1 (Disagree completely) to 7 (Agree completely). There are a few examples of the items which are "If I watched porn right now, I would have difficulty stopping", "The thought of watching porn makes me sexually aroused" and "My heart would beat faster if I were watching porn right now". The reliability of this instrument is 0.915 Cronbach's Alpha.

Next, the Moral Foundation Questionnaire which consists of two parts. Each part involves 16 items, but two items have been excluded because it was just to track respondent's attention to the questionnaire (Graham et al., 2011). The first part was measured with a 5-point Likert Scale, ranging from 0 (not at all relevant) to 5 (extremely relevant). The examples of the items are "Whether or not someone suffered emotionally", "Whether or not some people were treated differently than others" and "Whether or not someone's action showed love for his or her country". The second part was also measured with a 5-point Likert Scale, ranging from 0 (strongly disagree) to 5 (strongly agree). The reliability for this instrument is 0.897 Cronbach's Alpha.

Findings and Results
The current study has two objectives, (1) to examine the differences in porn addiction and moral judgment based on demographic information; and (2) to explore the association between porn addiction and moral judgment among youth in Malaysia, after controlling for demographic factors (gender and age).

The independent sample t-test, one-way ANOVA, and post-hoc were used to investigate the differences in porn addiction and moral judgment based on gender and age. Independent sample t-test revealed that there is significant difference in porn addiction among male and female youth, $t(206) = 4.97$, $p = .000$, with male youth experiencing higher porn addiction ($M = 37.87$, $SD = 14.36$) than female youth ($M = 27.77$, $SD = 14.94$). Next, one-way ANOVA demonstrated that porn addiction was significantly different according to the age of youth, with $F(3, 204) = 5.10$, $p = .002$. Due to unequal sample size for age, post-hoc analysis was conducted, and Hochberg's GT2 was used to examine further which age was different. The result showed that 21-year-old youth and above ($M = 44.45$, $SD = 19.79$), significantly have

higher mean of porn addiction, compared to those who were 19- (M = 31.12, SD = 13.81) and 20-year-old youth (M = 31.52, SD = 14.84).

With regard to the difference in five dimensions of moral judgement based on gender, independent sample t-test revealed that, only betrayal/loyalty dimension significantly different, t (206) = 2.57, p = .011, with male possesses higher moral judgement of betrayal/loyalty (M = 20.71, SD = 4.96), than female (M = 18.73, SD = 6.10). Next, one-way ANOVA showed that only 2 dimensions of moral judgement significantly different based on age of youth, which were betrayal/loyalty, with F (3, 204) = 4.17, p = 0.07, and subversion/authority, with F (3, 204) = 3.72, p = 0.12. Again, post-hoc analyses were done, and Hochberg's GT2 was used to examine further which age were different. The result demonstrated that, 19-year-old youth (M = 20.69, SD = 5.04) significantly have higher mean of betrayal/loyalty moral judgement with those who were 21-year-old and above (M = 16.18, SD = 6.69). Similarly, 19-year-old youth (M = 21.16, SD = 4.63) significantly experienced higher subversion/authority moral judgment compared to youth of 21-year-old and above (M = 17.18, SD = 6.47).

The next research objective was to explore the association between porn addiction and moral judgment, after controlling the demographic factors (gender and age). Correlation analysis was conducted first, followed by hierarchical regression analysis. The correlation analysis showed that porn addiction has significant negative relationships with almost all dimensions of moral judgment, apart from betrayal/loyalty, the correlation coefficient ranging from -.137 to -.164 and these coefficients considered as very weak relationships.

Table 2
Correlation analysis between porn addiction and five dimensions of moral judgement

Variable	Harm /Care	Cheating/ Fairness	Betrayal /Loyalty	Subversion /Authority	Degradation /Sanctity
Porn addiction	-.137*	-.160*	-.129	-.159*	-.164*

*correlation is significant at the 0.05 level

Next, Table 3 illustrates the hierarchical regression analysis, where the demographic information (gender and age) (Model I) and porn addiction (Model II) was regarded as the control variable, and moral judgment harm/care as the input. In Table 3, in which harm/care is the dependent variable, Model I, with two demographic information as the predictors, do not significantly explain any variance in harm/care (F (2, 205) = 1.810, p > .000). Model II, in which porn addiction was added, does not significantly explain more variance (R^2 change = .012, F (1, 204) = 1.88, p > .000). This model significantly does not explain any variance for harm/care (F (3, 204) = 1.841, p > .000). There are no significant predictors for this dependent variable.

Similarly, Table 4 demonstrates the hierarchical regression analysis, where the demographic information (gender and age) (Model I) and porn addiction (Model II) was regarded as the control variable, and moral judgment cheating/fairness as the input. In Table 4, in which cheating/fairness is the dependent variable, Model I, with two demographic information as the predictors, do not significantly explain any variance in cheating/fairness (F (2, 205) = 1.005, p > .000). Model II, in which porn addiction was added, does not significantly explain more variance (R^2 change = .018, F (1, 204) = 3.777, p > .000). This model significantly does not explain any variance for cheating/fairness (F (3, 204) = 1.938, p > .000). There are no significant predictors for this dependent variable.

On the other hand, Table 5 shows the hierarchical regression analysis, where the demographic information (gender and age) (Model I) and porn addiction (Model II) was regarded as the control variable, and moral judgment betrayal/loyalty as the input. In Table 5, in which betrayal/loyalty is the dependent variable, Model I, with two demographic information as the predictors, significantly explained variance in betrayal/loyalty (F (2, 205) = 6.943, p < .000). Model II, in which porn addiction was added, explained significantly more variance (R^2 change = .026, F (1, 204) = 5.721, p < .05). This model explained 8.9% of the variance in betrayal/loyalty (adjusted R^2 = .076) and was significant (F (3, 204) = 6.642, p < .000). The significant predictors for betrayal/loyalty were gender, age and porn addiction. In short, this analysis shows that porn addiction was significantly associated with betrayal/loyalty, even after controlling for the effect of demographic factors (gender and age).

Next, Table 6 reveals the hierarchical regression analysis, where the demographic information (gender and age) (Model I) and porn addiction (Model II) was regarded as the control variable, and moral judgment subversion/authority as the input. In Table 6, in which subversion/authority is the dependent variable, Model I, with two demographic information as the predictors, significantly explained variance in subversion/authority (F (2, 205) = 4.187, p < .05). Model II, in which porn addiction was added, explained significantly more variance (R^2 change = .029, F (1, 204) = 6.315, p < .05). This model explained 6.8% of the variance in subversion/authority (adjusted R^2 = .054) and was significant (F (3, 204) = 4.969, p < .05). The only significant predictor for subversion/authority was porn addiction. In short, this analysis shows that porn addiction was significantly associated with subversion/authority, even after controlling for the effect of demographic factors (gender and age).

Lastly, Table 7 illustrates the hierarchical regression analysis, where the demographic information (gender and age) (Model I) and porn addiction (Model II) was regarded as the control variable, and moral judgment degradation/sanctity as the input. In Table 7, in which degradation/sanctity is the dependent variable, Model I, with two demographic information as the predictors, did not significantly explain any variance in degradation/sanctity (F (2, 205) = 1.597, p > .000). Model II, in which porn addiction was added, explained significantly more variance (R^2 change = .029, F (1, 204) = 6.216, p < .05). This model explained 4.4% of the variance in degradation/sanctity (adjusted R^2 = .030) and was significant (F (3, 204) = 3.163, p < .05). The only significant predictor for degradation/sanctity was porn addiction. In short, this analysis shows that porn addiction was significantly associated with degradation/sanctity, even after controlling for the effect of demographic factors (gender and age).

Table 3
Hierarchical multiple regression for moral judgment harm/care

Dependent variable	Harm/Care					
Independent variable	Model I			Model II		
Control variable	β	t	p	β	t	p
Gender	.101	1.439	.152	.063	.843	.400
Age	-.103	-1.468	.144	-.080	-1.111	.268
Predictors						
Porn addiction				-.103	-1.374	.171
R²		.017			.026	
ΔR²		.017			.009	
F change		1.810			1.88	
Sig. F change		.166			.171	

Table 4
Hierarchical multiple regression for moral judgment cheating/fairness

Dependent variable	Cheating/Fairness					
Independent variable	Model I			Model II		
Control variable	β	t	p	β	t	p
Gender	.070	.996	.312	.017	.225	.822
Age	-.082	-1.161	.247	-.049	-.685	.494
Predictors						
Porn addiction				-.146	-1.943	.053
R²		.010			.028	
ΔR²		.010			.018	
F change		1.005			3.777	
Sig. F change		.368			.053	

Table 5
Hierarchical multiple regression for moral judgment betrayal/loyalty

Dependent variable	Betrayal/Loyalty					
Independent variable	Model I			Model II		
Control variable	β	t	p	β	t	p
Gender	-.146	-2.133	.034	-.210	-2.881	.004
Age	-.182	-2.655	.009	-.143	-2.054	.004
Predictors						
Porn addiction				-.174	-2.392	.018
R²		.063			.089	
ΔR²		.063			.026	
F change		6.943			5.721	
Sig. F change		.001			.018	

Table 6

Hierarchical multiple regression for moral judgment subversion/authority

Dependent variable Independent variable	Subversion/Authority Model I			Model II		
Control variable	β	t	p	β	t	p
Gender	-.076	-1.092	.276	-.143	-1.945	.053
Age	-.171	-2.459	.015	-.130	-1.837	.068
Predictors						
Porn addiction				-.185	-2.513	.013
R^2		.039			.068	
ΔR^2		.039			.029	
F change		4.187			6.315	
Sig. F change		.017			.013	

Table 7

Hierarchical multiple regression for moral judgment degradation/sanctity

Dependent variable Independent variable	Degradation/Sanctity Model I			Model II		
Control variable	β	t	p	β	t	p
Gender	-.034	-.480	.632	-.101	-1.361	.175
Age	-.114	-1.616	.108	-.072	-1.011	.313
Predictors						
Porn addiction				-.186	-2.493	.013
R^2		.015			.044	
ΔR^2		.015			.029	
F change		1.597			6.216	
Sig. F change		.205			.013	

Discussion

Differences of Pornography Addiction and Moral Judgement according to demographic factors
The t-test results revealed a difference in pornography addiction between genders whereby men scored higher than females significantly. The current finding supports previous studies such as a prevalence of pornography consumption difference between men and women in Danish adult is huge whereby men scored higher in their prevalence of pornography consumption (Hald, 2006). Even in romantic relationships whereby two partners have a higher acceptance of the use of pornography, pornography consumption is still higher among men compared to women (Willoughby et al., 2014). There are also different behavioral outcomes by gender among heterosexual couples due to use of pornography whereby a decrement in sexual desires for females while an increased engagement in sexual activities for men (Grov, et al., 2011). Appealing to this study, men and women differ by their engagement based on categories. It is also found that men engage in solitary-arousal and partnered-arousal frequently compared to women (Shaughnessy, 2011). Next, for the Betrayal/Loyalty foundation was more appealing to men than women significantly based on the result. This can be asserted by a study conducted by the Royal Publishing Society, when the study is replicated in non-WEIRD and collectivist countries, the Loyalty foundation is stronger for men compared in WEIRD countries (Atari et al., 2020). This is driven by the differences in political attitudes as in a cross-sectional study, U.S men are appealed towards inequality and social

dominance which is highly oriented toward conservatism (Pratto et al., 1997). Appealing to that, conservatism is driven by one's high endorsement for the Loyalty foundation (Graham et al., 2013). Moreover, in U.S politics, men highly favor domains that contain high competition and of loyalty, such as militarism and violence compared to women that are oriented towards social welfare programmes that elevates marginalized groups (Pratto, et al, 1997). This can also be mediated by personality differences as men score higher in the Dark Triad compared to women studied by Jonason and Davis (2018) and there is a positive correlation between the Dark Triad and conservatism (Arvan, 2013).

Next, the ANOVA result showed that as age increments from 19 to 24, one's porn addiction score becomes higher by average. This appeals to the study of the development of the adolescents' brain whereby the prefrontal cortex is still in a maturing phase and the dopamine system is overactivated (Brown & Wisco, 2019). This appeals to a study that show that they are more likely to engage in risk-taking behaviors as they are motivated to seek for novelty (Steinberg, 2008). Moreover, the perception of sexuality among 19 years old are also vague during that phase of their life hence with additional motivation for something salient, they resort to the Internet to understand their sexuality by watching sexually explicit contents such as pornography (Kar et al., 2015). The Sexual Health Model elucidates this further regarding how sexual pleasure influence young people to watch pornography as adolescents seek to understand their sexual anatomy, so they watch pornography to fulfill their sense of autonomy over their body as they learn what do they find pleasurable (Coleman, 2003; Robinson et al., 2002). Next, for age differences by their moral foundations, the favor for loyalty towards a social group becomes lesser as the age increases. A meta-analytic approach is able to support this as one's mean age and ideology explains about 40% of the variability for the correlation between age and the Loyalty/Betrayal Foundation (Esteves & Rincon, 2021). Moreover, Kohlberg's Theory of Moral Development also asserts the soundness of the result whereby as when a person reach adulthood they reach a stage whereby they cognitively start to question social norms and authority i.e the Post-Conventional stage which can encourage a person to go against the intuition for loyalty towards a group for the group can have morally wrong inclinations (Kohlberg, 1969). These studies also support the result for the subversion/authority moral foundation among age groups as age increases from 19 to 24, subversion towards authority increases as well.

Association Between Pornography Addiction and Moral Judgement
In this cross-sectional study, pornography addiction is shown to be a negative predictor of an individual's moral intuition for purity. This could be explained by a study regarding sexual deviant thoughts and behaviors by participants who consumes pornography. The respondents who scored low in purity due to pornography addiction could be moderated by their personality trait i.e the Dark Triad Pornography consumers who are engulfed by sexual deviant behaviors and thoughts which are associated with high neuroticism and high sub-clinical psychopathy (Williams et al., 2009). In effect, their moral intuition becomes low in purity.

For the Betrayal/Loyalty Dimension, pornography addiction is a significant negative predictor as based on the result. The current study findings are supported by empirical evidence which elucidates that people with preexisting ideology of liberalism will be most likely to watch pornography and accept the norm of sexual permissiveness (Wright, 2013). Liberalism has long been an ideology that contradicts the idea of nationalism and in-group loyalty as their belief system is leaned towards a globalized and progressive world (Graham

et al., 2013; Druckman, 1994). This premise explains that to have a lower moral sense of in-group loyalty, it could have been reinforced with the social norms adopted by liberals i.e accepting homosexuals (Crosby et al., 2020). Moreover, this could be moderated as well by their personality of high openness to experience as liberals by average are (Graham et al., 2013; Tybur et al., 2009) In addition, when sexual permissiveness as a factor was controlled, liberals were more leaning towards liberalism positively as exposure to pornography was more frequent, justifying the negative effects of pornography towards one's moral intuition. This premise is also supported by empirical evidence of liberals being more forgiving to politicians that committed sexual scandal in the U.S (Saxton, 2020). Thus, one's regard for in-group loyalty is less when exposure to pornography is increased mediated by liberal attitudes, behaviors, and openness to experience.

Moreover, a cultural factor can also be posited for the decrease of the moral sense of purity when a person watches pornography because pornography entices dehumanization since it involves the subordination of individuals thus impeding one's self-determination and autonomy over themselves. That act is an elicitor of disgust but due to the intensity of the sexual lust it provides, the use of social cognitive self-deceit mechanism is applied to justify their behavior such as euphemistic labelling, advantageous comparison, distortion of consequences and attribution of blame as posited by Albert Bandura, hence mitigating one's intuition to loathe such act (Neufeld, 2020; Dzeng et al., 2018; Bandura, 1999). For instance, individuals can attribute the blame of them watching pornography to the porn industry or the world itself for providing the platform or, disregard the consequences by not watching non-violent pornography or by watching it less than the frequency standard limit they thought it is. This method is called the minimization of behavior. In addition, aggression and sexual behavior is also portrayed in most best-selling pornography videos such as gagging, biting and open-hand slapping (Bridges et al., 2010) These acts could be disgusting to certain individuals who value a human life because such acts are a portrayal of aggression and coercion. Liberals that value fairness ought to disgust such acts as these acts involves a showcase of gender disparity whereby some males are shown to show dominance over females in those sexual acts (Graham et al., 2008). Deviant sex acts such as double penetrations of anal sex onto woman are also shown (Bridges et al., 2010) This is clearly an act of sexual objectification as pornography reinforces the view that women's function is to provide their body for sexual gratification (Willis et al., 2022).

Backed up by more philosophical argument, it has been posited that men are by nature "solitary, poor, nasty, brutish, and short" implying that pornography has the ability to reveal a man's nastiness and sexual deviant thinking (Hobbes, 1948). In addition, from an Islamic Psychological perspective regarding the soul, Al-Attas (2014) has laid out that man exists with a dual nature i.e the body and soul. Many literatures regarding pornography states the harmful effects of watching pornography from a psychological and physiological perspective but what that is less emphasized is the soul. In Islam, humans are endowed with the concept of *nafs.* The nafs is conceptualized by as the lower spot of human beings that plays a role for their ancestral emotions (Al-Ghazali, 1995). It can also be understood as the psyche as the English terminology provides (Abu-Raiya, 2012). Thereafter, we have three nafs i.e (1) al-nafs al-lawwamah, (2) al nafs al-mutma'inah and (3) al-nafs al-ammarah bi 'l-su. The first is the nafs where a person battles with its animal powers that tries to descend oneself to its bestial nature. The second is the soul that inclines to the truth. Finally, the third is the state of soul where it draws oneself to evil little by little causing men to hate humanity and engage in vile activities, in this case watching pornography. From a moral objective standpoint, watching

pornography will cause the third soul to draw oneself towards the biggest sins in Islam such as adultery hence one's moral decision on the matters of adultery is taken lightly. (Al-Attas, 1995).

Finally, according to the results, pornography addiction predicts the decrease of one's positive moral intuition regarding the importance of the authority. This is supported by the Indirect-Effects Model which states that the environment influences the development of antisocial behavior towards women generally (Mamaluth, 1989). The environment would be the mass media such as the social media platforms and televised news. According to the model, a hypothesis was made prior to that whereby the significant variables were the cultural forces i.e in this case, violent pornography and also individual experiences such as what takes place in one's home. There are intermediate variables that mediates the former that is their belief systems, sexual arousal to aggression, hostility towards women, personality characteristics etc. Then there are the situational variables i.e situations that open opportunities in letting potential perpetrators to commit antisocial behavior towards women. This model explains the underlying psychological process of how pornography causes a lesser respect for authority because antisocial behavior such as aggression and rape is clearly one's minimal amount of fear for God or authority (e.g laws that forbids such acts) (Grubbs et al., 2015). The former statement is in fact sound as adolescents that are high in religiosity paired with having mothers that are religious, avoid adolescents to possess lower self-control and decrease probability of adopting anti-social behavior in everyday life (Laird et al., 2011) Therefore, to adopt a strong sense of self-control translates to having a higher respect for authority because the link between the former and the latter is mediated by the religious faith that they adopt. This statement is reinforced by their prohibitive attitude towards it by advocating for it to be censored (Lambe, 2004). Hence, pornography could decrease one's respect for authority if one's religiosity is low, exacerbated by their lower self-control because of the adolescent's propensity for adopting rule breaking behavior grows stronger within their age (Niv et al., 2013). This is also supported by empirical neuroscientific evidence that the exhibition of pornography use does decrease the prefrontal cortex gray matter, hence having lower ability for self-control since the prefrontal cortex functions to regulate one's thoughts and behaviors (Muller, 2018).

Conclusion

There are a few limitations in this study such as the use of cross-sectional study to investigate the relationship of the variables. The setback is that a causality inference cannot be made to determine whether pornography addiction affect's one moral judgement generally. This is also due to the use of convenience sampling. Moreover, there is also a low number of respondents that are high in pornography addiction.

These findings bring about the implication for policymakers, sexual educationist, parents, and government-level advocates to use this evidence to explain the extensiveness of pornography's effect to one's moral value. Researchers that studies pornography, social cognition of adolescents and moral psychology can also use this current research to strengthens studies regarding the human's moral development. This study has brought forth a contributory result to understand the impact of pornography that is, in this cross-sectional study, pornography addiction has the ability influence the three moral foundations i.e Betrayal/Loyalty, Degradation/Sanctity and Subversion/Authority. Theories and models such as the sexual script theory, indirect-direct mode, the perpetration of the inhumanities from Bandura (1999), and the Islamic psychological framework i.e the nafs postulated by Al-Attas

(1995) help to understand the connection between those two variables. The target population should also be varied to other age groups and should implement a random sampling method upon adolescents in middle schools. For example, in Malaysia, secondary schools and fully residential schools should be a suitable target. Add other variables as well to examine its moderating role between these research variables. This idea is important in order to have a wider knowledge regarding the psychology of adolescents that are afflicted by pornography to reduce the taboo of speaking about the matter of sex and pornography. Methods to reduce one's acquiescence bias when answering porn-related questionnaires must also be considered.

Finally, theories and models such as the sexual script theory, indirect-direct model, the perpetration of the inhumanities from Bandura (1999), and the Islamic psychological framework i.e the nafs postulated by Al-Attas (1995) help to understand the connection between those two variables. Contextually, on the other hand, knowing that pornography addiction is harmful morally, this addiction can be used as a way to screen adolescents that has committed a sexual crime to be given effective treatment so that as when this addiction is tackled, the probability of committing the same crime will be reduced.

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