Decoding the Objectifying Gaze - An Empirical Exploration with Sexualized Media and Non-Sexualized Images

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by

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CERTIFICATE

It is certified that the work contained in this thesis, titled 'Objectifying Gaze of Non-Sexualized women and the role of Target's attire and Sexualized Media' by Bhupathiraju Krishna Srija, has been carried out under my supervision and is not submitted elsewhere for a degree.

_____ _____

Date Adviser: Prof. Kavita Vemuri

To Professor Kavita vemuri : For your endless support and guidance

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Abstract

Sexual objectification is a form of objectification where a person is reduced to his/her sexual functionalities. In general, women and minority people are primary victims of sexual objectification, although sexualization of men has been on the rise. Initial research believed sexual objectification to be a behavioral phenomenon. That is, a person is sexually objectified through thoughts or actions of the objectifier. For example, studies have found a strong correlation between the body-biased gaze (greater attention to sexual body parts), also termed the objectifying gaze, and the sexual objectification of women. Recent studies indicate that the manifestation of sexual objectification may extend to sub-conscious cognitive processes. There are fundamental differences in brain activity when processing human stimuli versus object stimuli. A recent study indicates that when objectified, sexualized female images but not sexualized male images are visually processed more locally, similar to objects.

For decades, there have been concerns regarding the growing hyper-sexualization of women in popular media like music videos, video games, etc., leading to content analysis studies on the music videos in various countries across the globe. And the results show that female characters' bodies are overly emphasized, primarily through revealing clothes and close-up shots of their bodies or sexual body parts. Frequent exposure to these objectifying media can lead to the manifestation of the objectifying gaze in the viewer. For example, a recent study reported that after watching sexualized pop music videos, viewers gaze objectified female images more. That is, they spent more time fixating on the sexual body parts of the female characters.

In this thesis, we explore different forms of gaze objectification of women and the priming effect of sexually objectifying music videos on the viewers' gaze when looking at female images in a South Asian context. The thesis comprises of two studies. In the first study, we explore gaze objectification of non-sexualized female images. We have used the eye-tracking mechanism to capture the gaze pattern and

the local/global paradigm to understand the underlying visual process when looking at non-sexualized female images. In the subsequent study, we investigate the priming effect of camera-induced objectifying gaze, operationalized via sexualized music video (MV), when looking at target female images in traditional (saree, salwar) and western (shirt-pant, short-dress) attire.

Our results show both genders' gaze-objectified female sexual body parts. Participants spent more time looking at female sexual body parts. And male (vs. female) images are processed more locally, similar to objects. The findings suggest that women are gaze-objectified even in non-sexualized attire. In the second study, we found that, when primed with sexualized music videos (vs. non-sexualized), female images are more gaze-objectified.

Our studies provide concrete evidence supporting existing research, which emphasizes that women experience elevated levels of gaze objectification. Additionally, exposure to sexualized media is identified as a factor contributing to the heightened objectification of women. This highlights the connection between media exposure and a cultural context where women are more commonly objectified. Recognizing and addressing these dynamics becomes crucial in understanding and mitigating the impact of sexual objectification.

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Chapter 1

Introduction

1.1 Problem Statement

1.2 Sexual Objectification

An object may be used, manipulated, controlled, and known through its physical properties. It's physical properties and usefulness define it to people. Similarly, when objectified, a person is perceived as an object devoid of humane attributes like feelings, a sense of agency, thinking, Etc. Sexual objectification is a form of objectification where the objectified person is perceived as a tool to fulfill the sexual desires of others. Similar to objects, women are defined solely by their sexual body parts and their sexual functioning. Philosopher Martha Nussbaum developed a list of seven traits that show, how people usually treat things and objects. They are instrumentality, denial of autonomy, fungibility, inertness, violability, ownership, and denial of subjectivity [104]. When any of these traits are applied to a person, especially a woman, she is objectified in the realm of sexual objectification. When sexually objectified, a woman is seen as a sum of sexual parts or sexual functions as if they are capable of representing her. In this way, she loses her unique personality and subjectivity and becomes just a body [14].

Objectification theory elucidates the myriad ways sexual objectification can materialize in day-to-day life and analyzes each of these avenues [48]. Sexual objectification experiences can range from reduction to appearance, subtle sexual evaluation, to sexual crimes. Sexual evaluation is a form of sexual objectification where people evaluate women based on their physical characteristics and, at the same time, convey their sexual intentions to the target of inspection, majorly women. Some of the examples of sexual evaluation that women experience every day are ogling, leering, catcalling, molesting, Etc.

Sexual violence is any sexual act or attempts to obtain a sexual act by violence or coercion, an act to traffic a person, or an act directed against a person's sexuality, regardless of the relationship to the victim. Molestation, sexual abuse, and rape are some examples of sexual violence. In this thesis, we focus on gaze objectification, a form of sexual objectification, where a person is objectified by focusing more on their sexual body parts. We explore manifestation of sexual objectification in the gaze and various factors influencing gaze behavior in South-Asian culture.

1.3 Effects of sexual objectification on dehumanization

Sexual objectification is a dehumanizing practice in which a person is deprived of his/her core human feelings and reduced to sex objects or sex beings [104]. Human dehumanization can be divided into animalistic and mechanistic dehumanization. Animalistic dehumanization occurs when a person is denied qualities that are uniquely human (competence, moral agency), and mechanistic dehumanization occurs when a person is denied human nature (emotions, warmth) and are seen as objects[67]. Objectified target is susceptible to both animalistic and mechanistic dehumanization [99, 136]. While it is true that anyone can be objectified, studies show that women and sexual minorities are primary victims of sexual objectification. Sexual objectification of women is inextricably tied to the stereotype that women are inferior to men in terms of moral and perceived agency, intelligence, and deserving of moral treatment [68]. While sexual objectification can result in dehumanization, implicit dehumanization also increases women's susceptibility to sexual objectification, creating a cyclic relationship. For example, studies found that implicit dehumanization of women as objects or animals is strongly correlated to rape myth acceptance and sexually aggressive attitudee towards women in men[116, 24].

1.4 Self Objectification

The propensity for objectification is acquired behavior; society, media, cultural influences, and schooling all play a significant role. Adopting the ideas of Simone de Beauvoir and other feminist theorists [14, 17, 138], Objectification theory asserts that the cultural milieu of sexual objectification acts to train girls and women to regard themselves as objects to be evaluated on the basis of appearance. Girls and women learn, both directly and indirectly, that their appearance matters: other people's assessments

of their physical appearance can shape how girls and women are treated in day-to-day interactions, which in turn can shape their social and economic outcomes [22, 30, 93]. Given the stakes, it seems reasonable for girls and women to predict the social consequences of their looks or, as [17] phrased it, ”to be their own first surveyors”. This method does not have to be purposeful or conscious. Rather, prolonged exposure to a variety of external demands to improve physical beauty can effectively teach girls and women, to see their attention to looks as self-selected or even natural. In short, our culture socializes girls and women to internalise an objectifying observer's perspective on their bodies, causing them to become obsessed with their physical beauty, a phenomenon known as self-objectification by continuous exposure to sexually objectifying interactions and media [48, 125]. In a nutshell, self-objectification occurs when people think about and value their bodies from the perspective of an observer, focusing on observable body attributes (e.g., ”How do I look?”) rather than from the perspective of a first-person, focusing on privileged, or non-observable body attributes (e.g., ”What am I capable of?” or ”How do I feel?”).

Self Objectification is a process wherein the person internalizes the objectifying standards of society and starts seeing himself/herself from a third-person perspective. When a person self-objectifies, he/she places more emphasis on non-functional attributes like physical appearance more than functional attributes like (physical well-being, competitiveness, Etc.), and this is attributed to sexual objectification, which focuses on physical appearance. Self Objectification is characterized by a range of thoughts and actions, including self-conscious body control, surveillance, and comparison of one's body or body parts to a cultural norm or ideal [10, 44]. Individuals would most likely self-objectify in situations that accentuate their awareness of observers' perspectives of their bodies [49]. The observer, in this case, can be actual others(interpersonal sexual objectification) or one's reflection. Self-objectification also occurs in women who regard sexual objectification as benign or even beneficial [44]. Objectification theory states, the environments that emphasize physical characteristics also promote self-objectification. For example, Fitness cultures that encourage women to wear revealing and body-hugging clothing, paired with fitness centers that are replete with mirrors, encourage self-objectification [111].

1.4.1 Correlation between sexual objectification experiences and self objectification

In 2008, [44] surveyed to investigate whether self-objectification is a product of specific coping mechanisms, opted for by victims of sexual objectification (in this case, sexual harassment by strangers). They used a modified version of the Sexual Experiences Questionnaire ([45])("Have you ever been subjected to stranger catcalls, whistles, or stares?") and the Coping with Harassment Questionnaire ([46]) to measure the coping mechanism opted by the victim, and Objectified Body consciousness scale(OBCS) for measuring self-objectification [95]. They have investigated four types of coping mechanisms categorized into: active coping (confronting the perpetrator or sharing the experience with a friend), passive coping (brushing them off and not acting), self-blame (believing they asked for it by wearing a specific dress or going to a particular location) and lastly treating harassment as benign or inconsequential (treating it like a joke or compliment). The findings report a positive correlation between coping strategies like (passive coping, self-blame, and treating harassment as benign or as a compliment) and self-objectification.

1.5 Effects of sexual objectification on the mental health and sense of safety in women

Sexual objectification occurs in three major ways: direct interpersonal encounters, witnessing the objectification of others, and mediated environments [48]. It affects each woman differently depending on her socioeconomic and cultural backgrounds[48]. State self-objectification is a temporary state where the target internalizes the third-person objectifying perspective of themselves. Sexually objectifying encounters like body evaluation, unwanted advances, etc., trigger state-self objectification in women leading to increased negative emotions like depression, body shame, appearance anxiety. State self-objectification may be induced via exposure to sexually objectifying environments like objectifying gaze, compliments, etc. This interrupts the flow and impairs cognitive performance via four primary pathways, namely body surveillance, discrepancies in the actual or ideal self, gender schema activation, and self-regulation[61]. Frequent sexually objectifying encounters also increases feelings of unsafety for women, as they are vulnerable to the attacks of the objectifier. [126]. [127] examined the relationship between sexually objectifying encounters and depression in college students. They found that sexual ob-

jectification experiences are positively correlated to self-objectification via increased body surveillance, and resulted in body shame and depression. In the following sections, we discuss in detail some of the studies that investigated the consequences of sexual objectification, both directly and indirectly via self-objectification.

1.5.1 Appearance Anxiety, Body Shame, Eating Disorder

Throughout different phases of life, individuals often find themselves aware of societal expectations regarding their appearance. It is unusual for an individual not to encounter comments related to their looks, regardless of the nature of these comments. The more one deviates from societal expectations concerning physical attributes, the more pronounced the scrutiny becomes. Experiences vary, and individuals may perceive societal norms in diverse ways. The impact of societal perceptions on one's existence transcends gender-specific encounters. This heightened emphasis on appearance implies to individuals, particularly women, that their physicality plays a significant role in societal validation. The awareness of being observed and evaluated based on appearance may lead to heightened self-consciousness and feelings of unease, particularly among women [48, 126].

The relationship between sexual objectification, body shame, appearance anxiety, and disordered eating is intricate and interconnected. Sexual objectification, which reduces individuals to sex objects, can contribute to body shame by emphasizing external appearance and reinforcing societal beauty standards. Objecitying environments can lead to the internalization of these standards and self-objectification. Body shame, closely linked to appearance anxiety, emerges as individuals perceive their bodies as inadequate or dissatisfactory.

[27] conducted an experiment to test the effect of the anticipation of the male gaze on female undergraduates' appearance-related concerns. Participants were asked to fill self-reported questionnaire while they waited for a small talk with a male/female stranger. The questionnaire include body shame, social physique anxiety, and dietary intent measures. Results demonstrate that participants who anticipated interacting with male(vs. female) strangers reported greater body shame and social physique anxiety. [9] investigated the role of exposure to sexualized(vs. non-sexualized) media on undergraduate women's state self-objectification. Participants were presented with sexualized magazine female models with high skin exposure(like in bikinis). They were asked to write down what they thought the article could

be about. Subsequently there were asked to complete twenty statements that start with "I am__" describing themselves. Results demonstrate that women exposed to sexualized media reported that when exposed to sexualized female images with high skin exposure, participants described themselves more in terms of their appearance. These descriptions have fewer positive things about their appearance than other conditions, demonstrating increased body dissatisfaction. Studies on Social media like Instagram demonstrate that exposure to Instagram's thin body ideal images increased negative mood changes and body dissatisfaction [34, 6, 110].

Eating Disorder encompasses a range of abnormal eating patterns, including restrictive eating, binge eating, and purging behaviors. Individuals may resort to disordered eating as a coping mechanism to gain a sense of control or to conform to perceived beauty standards. Appearance anxiety, body shame, and self-objectification exacerbate negative body image and promote an unhealthy focus on weight, shape, and control over food, thus increasing the risk of developing disordered eating behaviors. Addressing this complex relationship requires promoting body acceptance, challenging societal beauty ideals, and fostering a healthy and balanced approach to body image and self-worth. Several studies have explored the relationship between sexual objectification, self-objectification, and disordered eating [111, 73, 119].

[66] examined the relationship between sexual harassment, body image, and eating disturbances among undergraduate women. It found that sexual harassment, including gender harassment, unwanted sexual attention, and sexual coercion, are significantly correlated with eating disorder symptomatology. This suggests that experiencing sexual harassment may contribute to the development of disordered eating behaviors [66]. This correlation is evident even when the objectified target enjoys and perceive objectifying experiences as positive. [87], explored the relationship between women's enjoyment of being sexually admired and the potential impact on their empowerment and adherence to traditional feminine norms. The authors developed the Enjoyment of Sexualization Scale (ESS) to measure this construct and conducted three studies to examine its validity and relationship with other variables. The findings suggest that women who enjoy sexualization are more likely to engage in self-objectification and experience negative outcomes such as eating disturbances and lower self-esteem. The study challenges the notion of enjoyment as a form of empowerment and highlights the negative consequences

of sexualization. Similarly, Studies on self-objectification also reported positive correlation b/w body shame and eating disorders [10, 131].

1.5.2 Cognitive Performance and productivity, peak motivational states etc

Objectification theory argues that women suffer persistent anxiety due to the constant state of being objectified and, physical appearance and protection are constantly on their minds, rendering them incapable of getting to their emotional state [48, 126]. Sexual objectification can reduce women's peak motivational states, or what [35] refers to as "flow." Flow occurs when a situation requiring mental effort is perceived to be difficult, but the skills needed to overcome the difficulty are perceived to be sufficient, resulting in a highly productive and pleasant experience. A lack of self-awareness characterizes these states, as all mental attention is directed solely toward the mission at hand and not toward the life of the self [35]. Women who self-objectify are less likely to experience the undivided attention characteristic of flow, as a portion of their attention is constantly devoted to physical self-monitoring [48, 125, 44], and thus may experience lower rates of productivity and overall life satisfaction [48]. Increased attention toward physical appearance results in the reduction of cognitive performance in women but not in men. For example, female but not male subjects wearing swimsuits performed poorly in math and aptitude test than subjects wearing normal attire[49]. [61] investigated the effect of body-biased male/female gaze on women's cognitive performance via flow experience. They exposed participants to male/female body-biased gaze by making male/female experimenters take body pictures of the participant, followed by a Sustained Attention to Response Task (SART). Results demonstrated that when exposed to the male gaze, participants high in internalized beauty ideals accompanied lower flow, thus affecting their performance.

1.5.3 Physical Safety concerns

Objectification theory elucidates the myriad ways sexual objectification can materialize in day-to-day life. It provides an analysis of each of these avenues [48]. Sexual objectification experiences range from reduction to appearance, subtle sexual Evaluation to sexual crimes. Sexual Evaluation is a form of sexual objectification where people evaluate women based on their physical characteristics and, at the same time, convey their sexual intentions to the target of inspection, majorly women. Sexual violence is

any sexual act or attempts to obtain a sexual act by violence or coercion, an act to traffic a person, or an act directed against a person's sexuality, regardless of the relationship to the victim. Molestation, sexual abuse, and rape are some examples of sexual violence [38, 1]. The primary focus of this thesis is on the manifestation of sexual objectification in the gaze and various factors influencing gaze behavior.

1.6 Culture, Media and sexual objectification of Women in Indian cinema

Across cultures, an influencing source is the visual media, and empirical studies [51, 62] highlight the sexualisation of women in cinema, games, and advertisements. Social media platforms influence people of all age groups, and girls have been victims of hyper-sexualisation and commodification [29, 134, 80]. Content analysises of Instagram and Facebook posts of popular college groups, social media influencers etc., reported sexist gendered stereotypical themes like hyper-sexualisation or bodyism of women and depiction of womens' body parts as sex objects in posts to attract young adults [65, 39, 42, 110].

The commercial Indian film industry is home to the most influential kind of communication that the Indian people have access to. It's easy to write them off as "escapist," "melodramatic," "romantic," or "spectacular" because of all the music and dancing. However, if we dig a little further, it is impossible to deny that the popular Indian film is not merely an escape from reality or a spectacle, but rather it continually projects pre-existing beliefs and values. Women exist within the context of men either as a mother, daughter or lover and it is not an exaggeration to say that their roles are binary, good and bad. In most cases, the good ones are moms, daughters, sisters, or wives who are self-sacrificing, devoted, and obedient, and bad ones are 'modern'/'westernized' women [25, 2]. One popular way to create the distinction between traditional good women and modern bad women is through attire. While good women are dressed in traditional clothing like saree, salwar etc typical bad women wear western attires [108, 100, 26]. Being a musical genre, Indian cinema contains an average of 4-5 music videos. And like western music videos, Indian music videos are replete with sexual objectification instances of women. Cross cultural study shows that male gaze is stronger in Indian music videos than its male counterparts [118]. Among these music videos, there is a genre called "item number, where item refers to the scantily dressed female lead in the music video, where the lead dances provocatively while drunk male crowd is

whistling, leering, expressing its sexual interest in the lady [75, 121, 43]. "Item" is a slang word to refer women as sex objects. These item number are often the moneymakers of the cinema because of their immense popularity [86]. Originally, such songs featured females who played vamps on screen or made cameos in films. However, today's prominent actresses are also featured in such songs because it helps them further in their careers [78]. Under Cinema's influence, socioeconomic inequities are perpetuated, expressed, and maintained through popular music, especially Item Songs [141].

1.7 Research Gap

Objectification theory framework has discussed in detail the role of culture on sexual objectification experiences of women in everyday life. However, sexual objectification research is predominantly western centric, surrounding the experiences of western women. Although both west and east suffer from hyper-sexualization of women, south asian women, particularly indian women are victims of a combination of media hyper-sexualizing and real life desexualizing practices which we discuss in chapter4. However, objectification of women in south asia is only gaining traction in recent years and they are majorly content-analysis studies of the sexual objectification of women in culture and media. To our knowledge, no study has attempted to measure sexual objectification, especially its manifestation in the gaze when looking at South Asian female images.

The initial body of research provides ample evidence of the manifestation of sexual objectification of women at higher mental processes that influence the perception of women in terms of their capabilities or personalities. However, it is evident from emerging objectification research that women are potentially objectified at sub-conscious processes. Research demonstrated that human stimuli processing is fundamentally different from object processing and elicits activation in different brain regions[114, 132]. It is understood that humans are processed more holistically whereas objects are processed more analytically. While many studies have managed to use this difference to measure the objectification of women, they come with their own set of limitations. The first half of the thesis includes summary of various existing methodologies for measuring objectification and proposes a novel methodology, addressing these limitations to measure sexual objectification of non-sexualized South Asian women.

Gaze objectification is the most common form of sexual objectification women experience in their daily life. Content analysis on the South Asian media reveals that objectifying gaze is a predominant feature, along with its western counterpart. However, no study has been conducted to address the effect of media-induced objectifying gaze in Indian subcontinent. Given the popularity of media and it's access to people of all age groups, genders, etc, it is important to investigate on how exposure to these objectifying media can potentially manipulate the gaze behavior of viewers. And, how the role of target features like traditional conformity would affect the gaze in a culturally rich demographic like South Asia.

1.8 Proposal and Significance of our work

This thesis is an attempt to understand the gaze objectification and the relevant factors influencing the gaze behavior when looking at non-sexualized female images. It comprises of the following two studies.

- In the first study, we designed a novel methodology, extending previous studies to measure the visual perception of non-sexualized female images at covert and overt level. This study used standard navon recognition task to measure cognitive visual perception and eye-tracking to measure gaze pattern.

- In the second study, using eyetracking, investigated the priming effect of sexually objectifying music videos and the role of target images' attire on the gaze behaviour when looking at female images.

1.9 Key contributions

The overall key contributions are the following

- Designed novel methodology to measure the cognitive visual perception of female images that is robust to external physical factors of the stimuli like gender based biological differences, assymetry etc.

- Contributes to the empirical evidence that reports women are more objectified than men and exposure to sexually objectifying music videos induces objectifying gaze in the viewers and, this objectifying gaze is employed when looking at women outside of media irrespective of the attire.
- Adds cultural diversity to the sexual objectification research especially in the experimental research domain where cultural diversity is very lacking.

1.10 Thesis organization

The thesis contains following chapters.

- In Chapter 2, we do a literature review of the sexual objectification methodologies employed in the previous studies.
- In Chapter 3, we discuss the limitations of existing methodologies and propose novel experimental methodologies to measure cognitive gaze objectification. It includes methodology, analysis, results and discussion.
- In chapter 4, we briefly discuss the prevalence of sexual objectification in the media and its influence on youngsters. We then present a novel study using eye tracking to measure the priming effect of sexually objectifying music videos on viewers when looking at non-sexualized female images differing traditional conformity in terms of their attire. This chapter includes experimental design, methodology, analysis used to collect data and its results and discussion
- In Chapter 5, we conclude our work and, discuss limitations and future scope.

Chapter 2

Measuring Sexual Objectification

Sexual objectification occurs in various social contexts, including conversations with friends, family, coworkers, and strangers, and in media depictions of social situations [48]. Women experience sexually objectifying encounters every other day, primarily through excessive attention to their physical appearance, like deviant gaze, body-related commentary, physical advances, Etc. Given the gigantic influence of media on people, young and old alike, and its global reach, a body of research focused on the content analysis of the media like TV, cinema, music videos, etc., providing empirical evidence to the existing sexual objectification [134].

To measure the objectification of women in interpersonal interactions, few studies developed scales to measure sexual objectification experiences of women, such as sexually objectifying attitudes of the perpetrator, which will be discussed in the below sections. Sexual objectification, in the form of animalistic or mechanistic dehumanization, has been explored through semantic association tests [99].

2.1 Self-Reported Measuring Scales

Objectification theory was developed by Fredrickson and Roberts (1997) [48] as a framework for illustrating how the cultural practices of sexually objectifyied women adds to the disproportionately high rates of eating disorders, depression, and sexual dysfunction among women. Based on the constructs of objectification theory, various scales have been developed to measure objectification and the consequences of objectification on women's mental health. Some of these are explained in detail below.

Kozee, (2007). [83] developed a measure of women's reported experiences with interpersonal sexual objectification(ISOS). In this scale, they attempted to cover sexually objectifying experiences of women

in the form of body evaluation and unwanted explicit sexual advances Table 2.1. It is a 15-item scale (11- Body evaluation, 4- unwanted explicit sexual advances). This scale used a 5-point Likert-type scale (i.e., 1 = never, 2 = rarely, 3 = occasionally, 4 = frequently, 5 = almost always), and items are averaged. Higher scores indicate higher levels of interpersonal sexual objectification.

Later, Gervais and colleagues (2018) developed a perpetrator version of the Interpersonal sexual objectification scale(ISOS) that is inclusive of both victims and perpetrators of objectification Table 2.2. It can measure self-objectification, objectification of others, perpetration of sexual violence and different kinds of sexism like hostile and benevolent sexism, and sexualization pleasure [53].

Table 2.1: ISOS: Interpersonal Sexual Objectification

Factor1	Body Evaluation
1	How often have you been whistled at while walking down a street?
2	How often have you noticed someone staring at your breasts when you are talking to them?
3	How often have you felt like or known that someone was evaluating your physical appearance?
4	How often have you felt that someone is staring at your body?
5	How often have you noticed someone leering at your body?
6	How often have you heard a rude, sexual remark made about your body?
7	How often have you been honked at when you were walking down the street?
8	How often have you seen someone stare at one or more of your body parts?
9	How often have you overheard inappropriate sexual comments made about your body?
10	How often have you noticed that someone was not listening to what you were saying, but instead gazing at your body or a body part?
11	How often have you heard someone make sexual comments or innuendos when noticing your body?
Factor2	Unwanted Explicit Sexual Advances
12	How often have you been touched of fondled against your will?
13	How often have you experienced sexual harassment(on the job, in school, etc.)
14	How often has someone grabbed or pinched one of your private body areas against your will?
15	How often has someone made a degrading sexual gesture towards you?

Table 2.2: ISOS: Interpersonal Sexual Objectification- Perptertraion version

ISOS - P (How often have you..)	
1	Whistled at someone while she/he was walking down a street?
2	Stared at someone's breast/chest when you are talking to them?
3	Evaluated someone's physical appearance?
4	Stared at someone's body?
5	Leered at someone's body?
6	Made a rude, sexual remark about someone's body
7	Honked at someone when she/he was walking down the street?
8	Stared at one or more of someone's body parts?
9	Made inappropriate sexual comments about someone's body parts?
10	Gazed at someone's body or body part, instead of listening to what she/he was saying?
11	Made sexual comments or innuendos when noticing someone's body?
12	Touched or fondled someone against her/his will?
13	Perpetrated Sexual harassment(on the job, in school, etc.)?
14	Grabbed or Pinched Someone's private areas against her/his will?
15	Made a degrading sexual gesture towards someone?

For the following reasons, Self-report surveys are not deemed reliable 1) the reporters tend to give socially acceptable answers rather than their own opinions 2) the reporter's inability to recognize specific actions as objectifying in nature. Hence, researchers started exploring experimental methodologies to measure sexual objectification.

2.2 Cognitive Sexual Objectification

Cognitive objectification occurs when a set of cognitive processes like early visual processing, attention, and memory through which a person is perceived as similar to objects [18, 137]. In cognitive objectification, we focus on the underlying process of perceiving a person as object. When analytically processed, a person is processed not as a holistic physical entity but as a collection of body parts, analogous to object processing. Cognitive objectification may be a precursor to the dehumanization of objectified persons [31]. Cognitive processes are generally perceived to be higher mental processes in the brain that are not accessible by the conscious human brain. If the perpetrator employs objectification at a cognitive level, that means he/she may not be aware of their actions, and hence self-report measures

cannot capture this effect. In the following sections, we summarize some of the features and methods-behavioral and neural, employed in prior studies that worked on cognitive objectification.

2.2.1 Inversion effect

Objectification is understood by differential processes applied for person and object identification. For example, configural (global) processing, which is the perception of relationships and configurations between the constituent pieces (of a stimulus) is dominant in person recognition through holistic engagement in face and body-posture recognition [94]. Analytical (local) processing in object recognition disregards spatial relationships between its components. The inversion effect is a phenomenon where inverted human images are perceived differently than upright images, a robust indicator of the holistic processing of stimuli. The definition of the inversion effect varies with the cognitive parameter that is used to understand the holistic processing of human stimuli. [102] developed a Recognition task using local/global paradigm to quantify the local/global visual processing which is discussed in detail in chapter 3. In this section, we discuss various studies that used the inversion effect to understand the visual perception of women.

Bernard and his colleagues [18] were the first ones to propose that sexualized women but not sexualized men may be subjected to visual cognitive processing that is similar to objects. They proposed that sexualized women are processed locally, whereas sexualized men are processed globally. In the recognition task, the Inversion effect is a phenomenon where inverted images are more challenging to recognize than upright images. This effect is acutely evident in human face/body and object recognition [114] as face/body perception involves global processing, inverting the stimulus results in the distortion of the spatial relationship among the constituent features, thus affecting the recognition task, known as inversion effect. The inversion effect is absent in object recognition as it involves local processing where only features are processed. Hence, they hypothesized that the inversion effect would be absent in sexualized female recognition tasks akin to object recognition. The study conducted a target gender(male/female) X target orientation(upright/inverted) recognition task of sexualized images. Initially, the participant is presented with an original image(male/female) followed by two images containing the original image and its mirror image. The subjects were asked to identify the original image out of the

two. Half the trials consisted of upright image recognition, and half contained an inverted image recognition task. Supporting their hypothesis, they found that sexualized females are recognized equally well in both upright and inverted recognition, but upright males were recognized better than inverted males. The absence of the inversion effect is a marker that sexualized female images are processed similarly to objects.

Bernard, Rizzo, and colleagues (2018) [21] used the body-inversion paradigm in the context of N170 ERP (event-related potential) that is associated with the neural processing of faces, words, and familiar objects. They adopted the idea that disrupting configural body relationships through inversion leads to large N170s than upright-oriented images, indicating holistic/global processing. The study employed EEG techniques to capture the N170s amplitude when looking at sexualized/non-sexualized female images. To manipulate the degree of sexualization, they used clothing type(revealing vs. less revealing) and posture suggestiveness(sexually connoted vs. not sexually connoted). Larger N170s indicate that visual processing of these stimuli requires greater configural resources, which indicates gestalt processing. Similarly, similar N170s of the upright and inverted image imply analytical processing observed in object recognition.

Larger N170s for inverted non-sexualized bodies than their up-right counterparts indicate that non-sexualized bodies were processed configurally. In contrast, for sexualized bodies and objects, similar N170 amplitudes were found for inverted and upright images. Indicated by higher N170s for inverted bodies than upright bodies, these findings show that bodies with nonsuggestive postures were processed configurally. This was the case regardless of the type of clothes worn or the degree to which body asymmetry was present. The N170s for inverted and upright figures were similar, suggesting that bodies in suggestive poses were processed less configurally and more analytically. These findings point to suggestive posture as the primary factor in the cognitive objectification of sexualized bodies rather than the skin exposure or asymmetry of the body.

According to the findings of a recent investigation into the sexualized body inversion theory, variations in patterns of visual attention may contribute to the inversion effect, which moderates the local-global perception[33]. In section 2.3, we discuss various studies that investigated the sexual objectification of women through gaze behavior and the role of different factors like the objectified target's race, clothing, body size, degree of sexualization, Etc.

2.2.2 Sexual Body Part Recognition Bias

To investigate the cognitive objectification of women, Gervais (2012) conducted a study using a part-versus-whole body recognition paradigm [56]. This paradigm is a reliable indicator of the configural/analytical interpretation of stimuli. The study combined the part vs. whole body recognition paradigm, a reliable predictor of global/local perception, with objectification theory, which posits that women are viewed as a collection of sexual body parts rather than as a whole. The study comprises two experiments. In the first experiment, they conducted a recognition task where they modified male/female sexual body parts and presented them in isolation or within the context of the body. The participants are asked to recognize the original image. In the second experiment, the individual is primed with either a local or global recognition task before performing the recognition task presented in study 1. The findings from two experiments demonstrate that objectifiers process women as a collection of sexual body parts, and priming with local processing contributed to this sexual body part recognition bias, and priming with global processing interfered with it.

2.2.3 Functional Magnetic Resonance Imaging(FMRI) studies

As stated by Nussbaum, one of the core features of sexual objectification is diminished attribution of attributes like agency, autonomy, etc. [31] examined the cognitive objectification in terms of brain activity responsible for mind attribution. It also shows neural responses correlate to hostile and benevolent sexist attitudes. To measure the hostile and benevolent sexist attitudes, the study adopted the Ambivalent Sexism Inventory (ASI) [59]. The ASI is a 22-item self-report scale ranging from 1 (strongly disagree) to 6 (strongly agree). Half the items measure Hostile sexism (e.g., “Once a woman gets a man to commit to her, she usually tries to put him on a tight leash”), and the other half measures Benevolent Sexism (e.g., “A good woman should be set on a pedestal by her man”). Attitudes towards mind attribution are measured using an implicit association task [60]. This test is used to assess the strength of one pair of associations (i.e., sexualized female/first-person verbs, clothed female/third-person verbs) relative to the strength of the reverse pair of associations (sexualized female/third-person verbs, clothed female targets/first-person verbs) by calculating the time taken for participants to map categories and features together on to the different sides of the computer screen (labels: bikini/clothed; “I” verbs/“She” verbs).

In the second experiment, they repeated the first experiment but included sexualized/non-sexualized male stimuli. They also measured neural responses to the stimuli using FMRI. The findings from experiment 1 show that hostile sexism is positively correlated with first-person verb attribution to sexualized women and third-person attribution to clothed women. Findings from experiment 2 report that men rated high on hostile sexism displayed lower activation in brain regions responsible for mind attribution when viewing sexualized women but not sexualized men or non-sexualized men/women.

2.2.4 Odd ball Paradigm and P300 Event related potential using EEG

Vaes et al. (2019). [132] conducted three experiments using the oddball paradigm to investigate the question of whether or not sexually objectified women are reduced to objects at a cognitive level. In order to gain an understanding of the underlying processing, they analyzed a component of Event-related potentials (ERP) called p300. P300 is an event-related potential component that occurs around 250–600 milliseconds after the onset of the stimulus. According to research, P300 is triggered by the infrequent stimulus, and its amplitude increases to the extent that the infrequent stimulus is perceived as being distinct from the repeated stimuli [109, 41]. They carried out a total of three different trials. The repeated stimuli in the first study were either sexualized male or female images, and the rare stimuli were things that were perceptually comparable to those images (like avatars, Etc.). In the second study, they replicated the first experiment but, this time used images of men and women that were not sexualized. The findings indicate that sexualized women, not sexualized men or non-sexualized men or women, are processed in a manner analogous to objects; specifically, female doll-like avatars elicited a lower p300 when presented among sexualized images of females.

2.3 Eyetracking

Nummenmaa (2012)studied the gaze patterns of participants when looking at clothed and nude human figures of opposite gender [103] . They conducted two experiments, in the first experiment they presented 30 male undergraduate psychology students with 120 digital images of nude, clothed attractive and normal weight male and female images. Each image is presented for 4 seconds and particiants' task was to look at them in the way similar to when they look at images in magazine etc. In the experi-

ment2, they replicated experiment1 but conducted it on both male and female participants. They found that participants fixated more on sexual body parts when looking at nude figures. They also found that greater fixation at sexual body parts is positively correlated with elevated arousal.

Gervais (2013) conducted an eye-tracking experiment to understand the differential gaze patterns when looking at women with a focus on appearance vs(personality)[54]. The study also include the size of the body (ranking high to low on media ideals) as a parameter. In the study, participants were presented with images of women in either appearance or personality focus condition. In appearance focus condition, they were presented with image for 3 seconds and tasked to rate the target based on their physical appearance. In Personality focus condition, participants rate the target based on positive personality. Results show that participants gazed more on sexual body parts(chest and waist) of the target when focus is on appearance(vs. personality). They also found the this effect is more pronounced when looking at media ideal body sized women(high hip to waist ratio). They also found the men rated thin body ideal women as high in positive personality and appearance.

The Jezebel stereotype is a racist and sexist stereotype that has been historically applied to Black women, portraying them as sexually promiscuous, immoral, and hypersexual. The stereotype has its roots in the antebellum period of slavery in the United States, when Black women were often sexually exploited and abused by their white slave owners. Anderson (2018) aimed at understanding if Black women are more sexually objectified than White women and if this impact is exacerbated by target sexualization [4]. They conducted two experiments. In the first one, they employed eye-tracking, they exposed participants to pictures of black and white women dressed in sexualized and non-sexualized attire. The task is to rate the target in terms of their warmth and competence. They captured participants' gaze using eye-tracker. In the second study, they opted for Go/No-Go Association task(GNAT) to measure the implicit animalistic and machanistic dehumanization. In this task, participants are presented with word - attributes related to objects or humans or animals, the participant has to choose whether the target is related to the word or not. Eye tracking data showed that White participants displayed greater objectifying gaze when looking at sexualied black targets compared to sexualized white targets. GNAT results report that black targets are strongly associated with animal and object related attributes compared to white targets suggesting greated animalistic and mechanistic dehumanization.

Since there is no predetermined dress code or standard work suit for women, they must make wardrobe choices on a daily basis. Some argue that women should dress in a sexualized manner to obtain power and influence, but sexy attire is associated with diminished perceptions of competence for women in leadership roles. Addressing this issue, Smith (2018) investigated how people's impressions of a woman's leadership skills changed depending on whether she wore a modest or revealing outfit[122].They also employed eye-tracking equipment to see if focusing on a woman's breasts or hemline would drive people to view her as less competent or electable as a leader. 191 college students rated a female candidate wearing revealing apparel as less electable, competent, and honest than a candidate wearing conservative attire for the student senate presidency at a U.S. university. When the candidate wore revealing apparel as opposed to conservative clothing, sexualized body parts were seen for longer. Additionally, mediation studies showed that participants' attention was drawn to sexualized body parts as a result of the candidate's revealing attire, which in turn caused them to think less highly of her competence and electability. These findings imply that seeing a lady in a seductive attire may cause people to focus more on her physique and have unfavorable opinions of her personality.

The act of body gazing is seen to be a crucial component of sexual objectification. However, there aren't many self-report gaze measures available, and none of them included the conduct intended to elicit other people's body gaze. [72] developed and validated a novel self-report scale to quantify persistent body gaze behavior and body gaze provocation behavior in heterosexual women and men across two trials using current self-report tools and eye movement analysis. Participants (1021) in Study 1 filled out a survey with newly developed questions about ubiquitous body gaze and body gaze provocation behavior [table]. Additionally, participants filled out pre-existing questionnaires about their relationship status, use of pornography, views toward sexual assault, and body image. It is a 12-item scale (Table-2.3) for men and women to individually quantify pervasive body gaze (5 items) and body gaze provocation (7 items) toward the opposite sex was recommended by exploratory and confirmatory factor analyses across independent populations . Excellent internal consistency estimates for the two scores (.86–.89) and promising convergent validity through favorable correlations with body and sexual attitudes were obtained. An eye-tracking task was used in Study 2 to record the gaze behavior of participants from Study 1 when looking at photographs of partially and fully dressed male and female targets. Findings report that while women showed head-biased gaze behavior toward fully clothed male imagery, males

showed body-biased gaze behavior for all female target images independent of the degree of sexualization. Importantly, some features of objectively assessed body gaze behavior positively linked with self-reported body gaze. Both scores had strong test-retest reliability and had a favorable correlation with attitudes toward sexual assault.

Table 2.3: Body Gaze Perpetration and Body Gaze Behavior Scale

Body gaze provocation	
1	Even if my clothes are not revealing, I still try and draw attention to my body.
2	I make an effort to behave in a manner which attracts attention to my body.
3	If I notice an attractive man/woman looking at my body, I try to keep his/her attention.
4	No matter where I am, I typically wear revealing clothing.
5	I intentionally position myself to give men/women a better view of my body.
6	If I'm wearing revealing clothing, it is because I want to gain the attention of men/women.
7	Sometimes I touch parts of my body to draw attention from men/women.
Body gaze Behavior	
8	Even if a man/woman's clothing is not revealing, I still try to look at his/her body.
9	No matter where I am, I typically find myself looking at the bodies of men/women.
10	Once I notice an attractive man/woman's body, I have trouble not looking at it.
11	I intentionally position myself to get a better view of the bodies of men/women.
12	I often look at the bodies of men/women when they are unaware that I am looking at them.

Given the persaviness of sexual objectification of women in visual media through hypersexualization of women, Hollett,2020 investigated whether female characters from adult-only games attract more sexually objectifying gaze as compared to male character and all-age games. They also investigated participant gender effect in the differential gaze behavior i.e., whether objectifying gaze behavior is more prominent in men compared to women when looking at the female targets. To understand the correlation between sexually objectifying gaze and rape myth acceptance attitudes and valence rating of targets, they asked participants to rate the valence of the character like pleasantness and also complete a 'Rape Myth Acceptance Scale'. The participant sample consists of 116 Australian university students and citizens ranging form 18-59 years old. Using eye-tracker, participants gaze behavior is captured when looking at imags of female and male characters from both adult-only and all-age video games. The findings demonstrated that both men and women viewed female characters from adult-only, but not all-ages, video games with a sexually objectifying gaze. However, valence ratings were significantly positively linked with objectifying gaze activity for men but not for women. Rape myth acceptance

attitudes did not correspond with gaze behavior. Therefore, compared to women, men are more prone to exhibit objectifying gaze behavior as a sign of affective preferences. The study adds to the empirical evidence that suggest playing games that encourage sexually objectifying gaze increases the likelihood that players will evaluate women based on their bodies.

Karsay, 2018 [80] conducted an eye-tracking study to investigate the priming effect of sexually objecitfying music videos on the viewers gaze behavior when looking at female targets in varying in body size(ideal and plus size model) and degrees of skin exposure (fully clothed, scantily clothed, partially clothed). The participants were presented with 36 female images where each image is presented for 4 seconds. Findings suggest that objectifying gaze i.e body biased gaze is more prominent in sexualized priming condition when looking at ideal size model. These results add empirical evidence to the body of research that suggests, exoposure to sexually objectifying visual media has the potential to manipulate the gaze behavior when looking at women.

Chapter 3

Objectifying Gaze: An Empirical Study with Non-Sexualized Images

3.1 Introduction

For the most part, studies on objectification have looked at pictures or films of sexualized women (in bikinis or skin-revealing attire), which has led to some interesting findings. Objectification of women is still present, even when they are dressed modestly or in clothing that is considered to be socially acceptable or "sanctioned" wear. Therefore, the purpose of this study is to learn how objectification theory may be used to examine women (and men) in more informal settings (such as the workplace or school). The choice of wearing pants and a shirt is a deliberate one based on: a) the demographics of the study participants, who typically wear pants (male and female), salwar/kurtas (female), or long skirts (female), and b) seeing women in this attire in offices, classrooms, and homes, which is a familiarity and is therefore perceived to be less sexually provocative.

Knowing the challenges of using gaze behaviour to infer objectification, we set out to develop a new approach. To investigate the local/global visual processing of male and female images, we opted for a standard navon local/global recognition task. Face recognition has used the Navon paradigm to estimate accuracy through feature extraction and spatial linkages (configural processing) [15, 128], and it has been demonstrated that faces are processed more holistically than non-face body parts [139]. The sexualized body inversion theory [18] was also addressed to analyse the differences in how people look at photos when they are rightside up versus upside-down. According to the findings of a recent investigation into the sexualized body inversion theory(refer to section 2.3.1), variations in patterns of visual

attention may be one of the factors that contribute to the inversion effect, which moderates the local-global perception[33]. That is, the transitioning between tasks entails two different process changes, which are referred to as ”Transfer appropriate process shift” and ”Transfer inappropriate process shift”. In the first scenario, the residually active procedures make subsequent processing easier, which ultimately results in improved response time performance. Because it entails switching processes that were not there in the former, it causes problems with subsequent processing in the latter, which in turn slows down the performance of the reaction time. Studies show that sexually objectified women are processed more like objects and female images are perceived more locally than male images. Hence, our experimental paradigm expects an Appropriate transfer shift when primed with female images and an improper transfer shift in the male priming condition for local recognition circumstances and vice versa in global recognition.

To measure the visual gaze objectification, we used eye-tracking technology to capture the scan path and gaze fixation (AoI: Area of Interest- face & sexual body parts of chest/hip area) of the participant when looking at male(female) images. In this study, we focus on the fixation duration, first fixation and the visit count on the target AoIs. Longer total fixation duration and visit count represent covert/overt attention bias, while the first fixation duration indicate the perceiver's initial attraction to AoI. Revisits frequency represent the 'attraction' level for an AOI.

3.2 Hypothesis

3.2.1 Priming Effect

Global Recognition: Sexualized body inversion theory(2.2.1) and sexual body part recognition(2.2.2) theory reported that objectified female bodies are processed more locally and entails a more local processing when looking at female images compared to male images. Hence, When women are objectified, an inappropriate transfer shift in the female priming condition is expected, interfering the recognition task and affecting the performance in terms of speed. And an appropriate transfer shift in the male priming condition is projected. Hence, we hypothesised

H1: Global recognition is faster in male priming than in female priming condition.

Local recognition: When women are objectified, an appropriate transfer shift for female priming and an inappropriate transfer shift in male target image priming conditions is expected. Hence, we hypothesised

H2: Local recognition is faster in female priming than in male priming.

3.2.2 Eye Tracking

In line with the objectification theory and the findings of previous eye-tracking experiments, we formed the hypothesis that female targets receive a greater amount of visual attention on their sexual body parts. We also predict that participants will be more likely to revisit the sexual body areas of the female target than the male target. Therefore, we hypothesised H3: Longer fixation, higher fixation revisits, and longer initial fixation on female sexual body regions.

To study the body-inversion effect, we did not collect behavioural recall measures as originally proposed [18, 19, 129] and applied them in other studies[140, 7]. Instead, the impact was analysed by comparing how people's gaze changed from viewing a picture in its intended orientation to seeing it upside down, and by extrapolating that effect to Navon image processing.[33] used eye tracking to analyse gaze behaviour and found that participants spent more time fixating on the breast and pelvic area of inverted pictures. Thus, if the inversion hypothesis of objectification can result in divergent processing (analytical/configural), then the amount of time we spend gazing at a woman's privates may vary with her orientation. We hypothesise

H4: For female target images, gaze on sexual body parts would be higher in inverted orientations reflective of analytical processing.

3.3 Methodology

3.3.1 Participants

Ninety-four (24 women, 70 men, age = 18-27 years, mean = 21, stdev ±2.1) undergraduate and graduate students participated. All participants identified themselves as heterosexual, in the self-report question on sexual orientation. The participants were recruited by a drive on the campus social net-

working site. A participation appreciation amount of INR 100 was paid to each. The experiment's goal and objective were not disclosed to the participants. The Institute Human ethics committee gave ethical clearance, and informed consent was taken from the participants. The participants were informed that they could exit the experiment at any time with no penalty. Following the ethics committee's suggestions, photographs of male and female actors posted on the web were considered as against considering photographs of the student population of the campus.

3.3.2 Stimuli selection

3.3.2.1 Priming Stimuli

Our study's overarching goal is to take a look at how women are objectified in various social and public contexts. We chose pictures of young women wearing the jeans/pants and top/shirt, or any combination thereof because these garments are commonplace in urban areas of India as work or casual wear. In addition, for the sake of maintaining a level of consistency throughout the target images, photographs of males dressed in similar apparel were selected. Twenty photos made up the priming stimuli: ten were male (MI) and ten were female(FI). For the purpose of reducing implicit social bias caused by differences in skin tone or attention to the colours of the clothing, the colour images were changed to black and white (Fig:3.1a,3.1b). From each set, five images were inverted and five were upright. To lessen eye anchoring to the centre of the screen, the photographs were presented off-centre and randomised between the right and left.

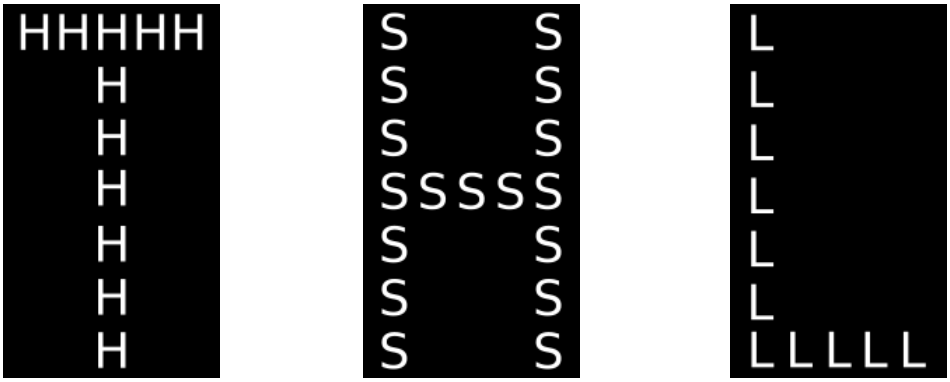
3.3.2.2 Recognition Task Stimuli

A Navon figure contains compound letter stimuli, which are divided into three groups and comprise large letters (global) made of smaller (local) letters, Local Navon image, global Navon image, or neither local nor global Navon image. Take the letter "H" as an example; in a global Navon, "H" would be present as a contour but not as a feature(Figure 3.2b). The target letter is present in the local Navon image in the form of a feature, but not as a contour(Figure 3.2a). When the target letter does not appear as a contour or a feature, this is referred to as a "no global/local image"(Figure 3.2c). In total, 26 Navon pictures were made. In the trial block, we used two examples each of the global, the local, and the

(a) Male (b) Female

Figure 3.1: Male/Female(Fig a/ Fig b) priming stimuli sample

neutral picture from this set. There were a total of sixteen experimental trials conducted, with eight in each of the local and global categories, as well as four in the no global/local category.



(a) Local (b) Global (c) Dummy

Figure 3.2: Target letter is 'H'. a) 'H' is present as a shape, b) 'H' is present as a feature, c) 'H' is absent, neither local nor global

3.3.3 Apparatus

The Tobii Studio software served as the platform for the experiment's conception and execution. Tobii x120 eye-trackers were used to monitor a subject's eye movements and record where the subject's gaze was fixed on an LCD monitor. Using a binocular pupil-tracking method and near-infrared light to create reflection patterns on the cornea and pupil, the eye tracker captures the time-varying eye location and movement. High-precision estimation of the point of gaze with respect to the coordinates on the LCD panel is achieved by using the image sensor to capture photographs of the eyes and reflection patterns.

3.3.4 Experiment Procedure

Participants sat between 51 and 71 centimetres (the optimal range suggested by the device specification) from a 22-inch LCD monitor hooked up to a central processing unit. The gaze coordinates were recorded and extracted using Tobii Pro software. The researcher left the lab area to protect participant privacy following the thorough oral explanation of the Navon test, calibration with a 9-point target-tracking method, followed by written instruction and the trail block. The study used a within-subject design. There were two independent variables: gender of the actors (with two levels: Female, Male) and orientation (with two levels: Upright and inverted). The dependent variable was response time: (with two levels: global response time and local response time), which is the time taken to recognise the target shape (with two levels either: Letter' H or Letter' O') in the presented Navon image (Figure 3.2). The priming condition and Navon local/global recognition were randomised to minimise confounding effects. The experimenter instructed the participant to press 'B' if they identified either one of the target letters ('H' / O') either as a contour or a feature (the letter itself). They had to hit the 'N' key in the absence of target letters (Figure 3.3). The keys' N' and' B' were selected as they lie in the centre of the keyboard and can reduce latency. The response time is measured as the time taken to press the key from the onset of the Navon image presentation. The experiment started with detailed instructions regarding the task, followed by a trial block. 20 sets were presented, and in each, an actor(male/female) image in any orientation (upright/inverted) is shown for 7 seconds, followed by a grey-coloured screen with a plus sign presented for 1 second, and followed by a Navon image (Figure 3.4).

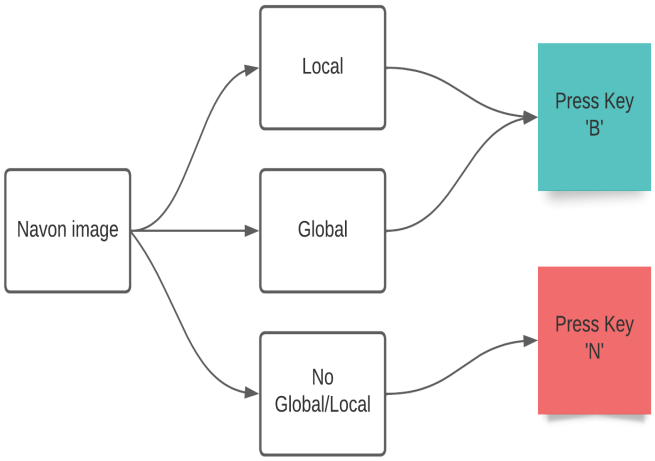


Figure 3.3: Recognition task

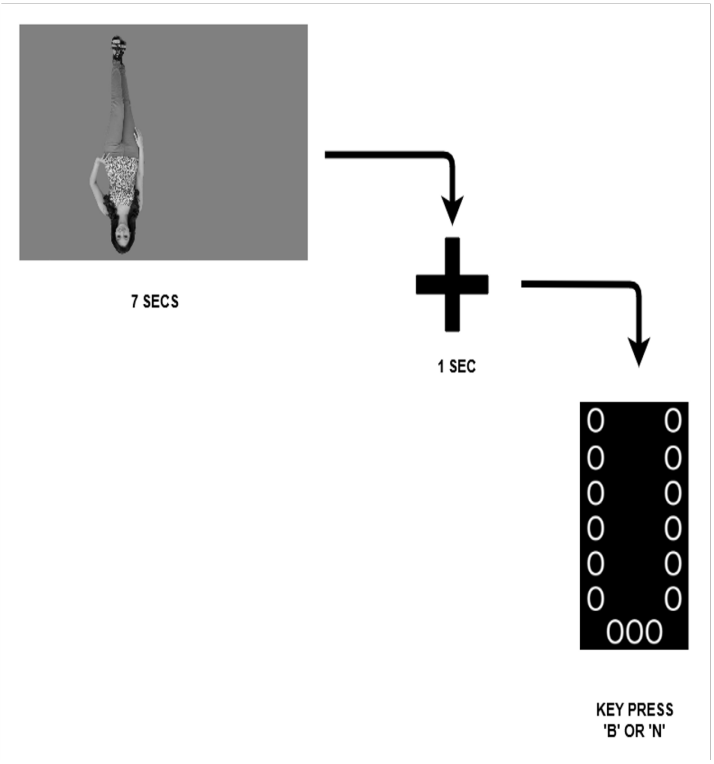


Figure 3.4: Priming of recognition task

3.3.5 Data Analysis

Data Extraction: Following procedures proposed in eye-tracking research (e.g. [3, 4, 70], the Tobii IVT filter default parameter settings in Tobii studio software were applied. The 9-point calibration task

at the beginning of the experiment had five participants' data with a poor sampling rate ($< 40\%$), and these data sets were excluded. A threshold of 60ms for fixation duration was used [105](Olsen & Matos, 2012). Three non-overlapping areas of interest (AOIs) of the face (oval shape) and sexual body (SB) parts (rectangular shapes covering the chest, hip) were marked for each image (Figure 2). In addition to analysing each AOI independently, the hip and chest as sexual body parts were summed when running the comparative analysis. The eye-tracking metrics for the AOIs Figure 3.5) were: 1) The first fixation duration (FFD), 2) The total fixation duration (FD), 3) visit frequency or count (VC).

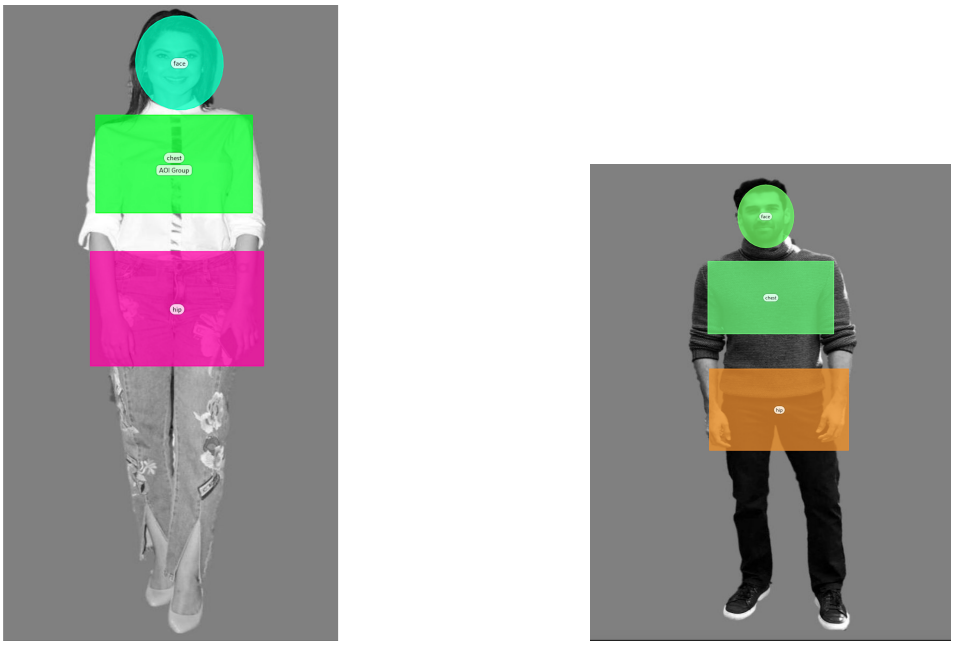


Figure 3.5: AoI marking for male and female image

To calculate the mean FFD, FD, and Visit count for each AOI, a Python script was created to extract the fixation duration and timestamps from the raw data. This allowed the script to calculate the mean FFD. The Tukey fence outlier identification approach eliminated the data of an additional 10 participants from the set of first fixation time data, which resulted in a final dataset consisting of 79 participants. Statistical Tests: We employed a bivariate non-parametric testing methodology. Within-subject analysis was performed using the Wilcoxon Signed Rank Test, while between-subject analysis was conducted using the Mann Whitney U test. To investigate potential interaction effects with Navon's picture recognition response time, a multivariate study was performed using a mixed model ANOVA.

3.4 Results

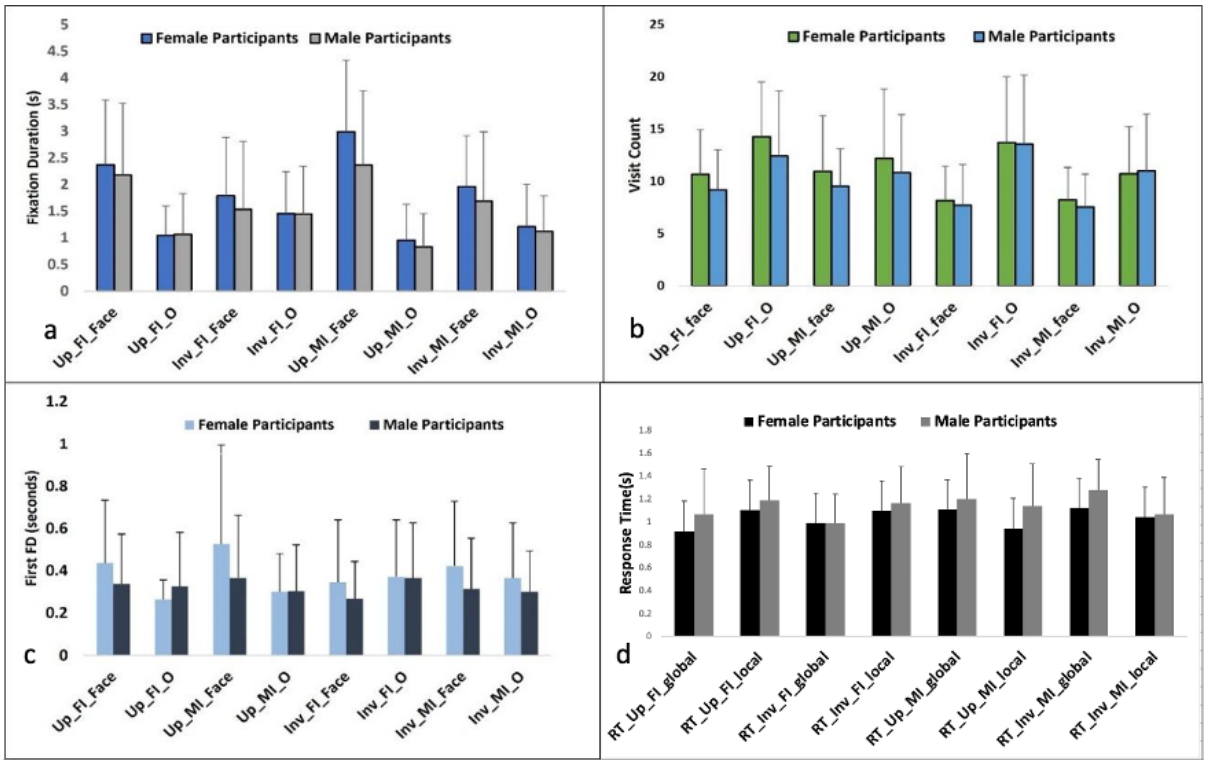


Figure 3.6: The participant gender group analysis
a) Mean values of Fixation duration with the standard deviations. b) Revisit Frequency c) First FD d) Response Times. FI/MI_Up/Inv_O : FI/MI = Female/Male Image; orientation: Up = upright and Inv = inverted O=: chest & hips AoI ; U_MI/FI_global/local : response time for Navon global/local precedence when primed by upright male and female images.

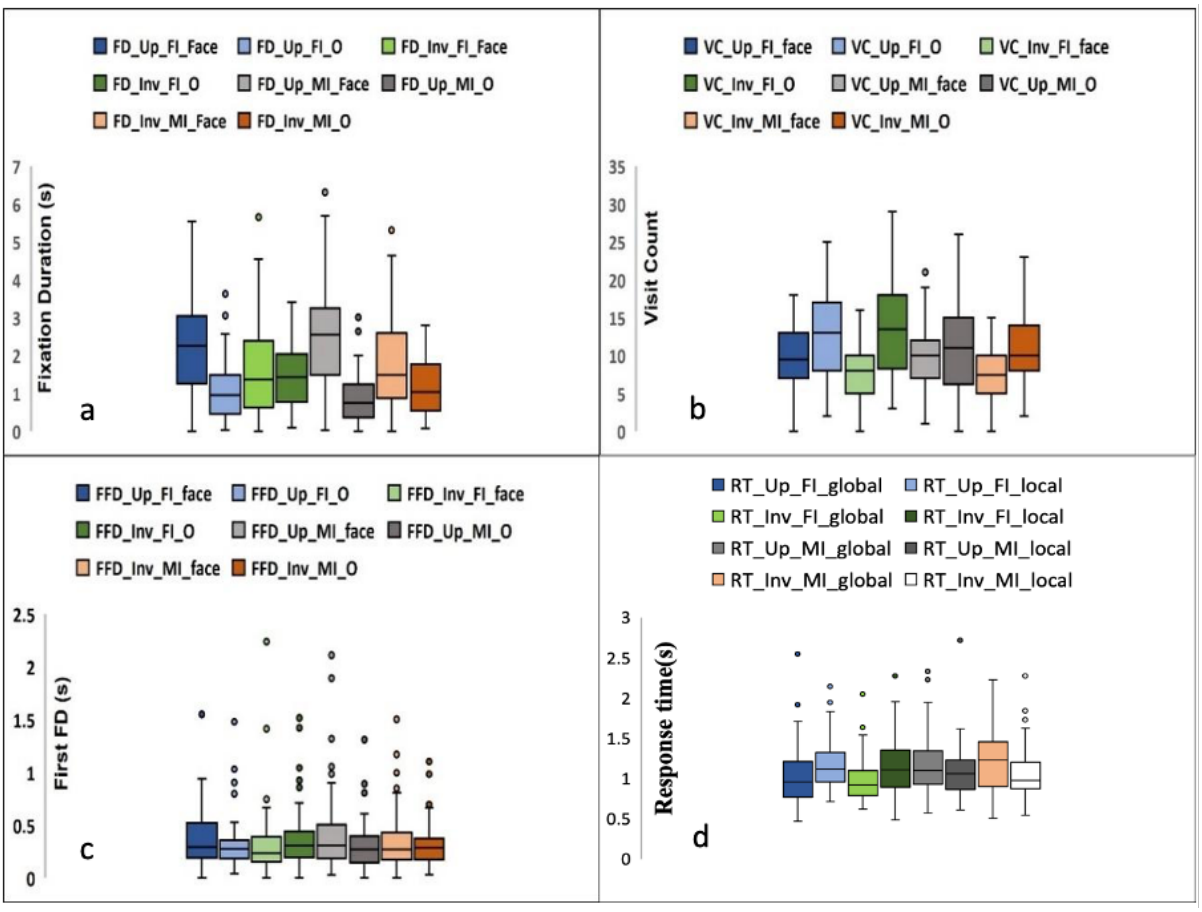


Figure 3.7: Combined (male & female participants) gaze variables: a) Fixation duration(FD) (top-left), b) Visit Count (top-right), c) First FD (bottom-left) of upright/inverted male/female images, and d) response times(RT) in upright/inverted male/female image priming. For label abbreviations, please refer to Figure 3.6 caption.

3.4.1 Fixation duration

The female participants' fixation duration on the face was higher for both image categories and orientation but comparable to the male participants for the sexual body parts (chest/hips) (Figure 3.6 a). The between-gender difference was insignificant (at $p > 0.05$). In the subsequent analysis, the participant gender was not considered a compounding factor but included in the study for interaction effects.

We found both main effect of target gender images and orientation on the fixation duration (Figure 3.7a). In the between-orientation conditions comparison for both the target genders the upright face $>$ inverted face (FI: z=-4.3128, p-value $<$ .00001, effect size=0.4597; MI: z=-5.3467, p-value $<$

.00001, effect size=0.5699). For SB AoI's, the upright SB parts < inverted SB (FI: z=-4.9681, p-value < .00001, effect size=0.5296; MI: z=-3.7573, p-value=.00016, effect size=0.40053). Within image categories, the average fixation duration on face is lower for female (vs. male) image in both upright (z=-3.6366, p-value=.00028, effect size=0.38766) and inverted position (z is-2.6193, p-value=.0088, effect size=0.2792). The average fixation duration of sexual body parts is greater for female (vs. male) images in both upright (z=-3.2122, p-value=.00132, effect size=0.3424) and inverted position (z=-3.5076, p-value=.00044, effect size=0.3739).

3.4.2 Visit Count

The female participant's visit count to face is higher in both orientations, and for sexual body parts for male/female images but similar for inverted images (Figure 3.6b), while the participant gender effect did not reach significance (P > 0.08). Both orientation and target gender effect were observed, wherein the sexual body parts garnered higher revisits than the face (Figure 3.7b). That is, FI SB parts > FI face (z=-5.9975, p-value < .00001, effect size=0.6393), and inverted FI SB parts > upright FI sexual body parts (z=-7.4545, p-value < .00001, effect size=0.7946). Similarly, MI SB parts > MI face (z=-2.8708, p-value=.0041, effect size=0.3060) while significance was not observed for the comparison of inverted and upright MI SB parts. For face AoI's, the inverted face is < upright face (FI: z=-4.1668, p-value < .00001, effect size=0.4441; MI: z=-5.0553, p-value < .00001, effect size=0.5388). Importantly, FI SB parts > MI SB parts in upright (z=-3.4389, p-value=.00058, effect size=.3665) and inverted orientation (z=-4.6715, p-value < .00001, effect size=0.4979).

3.4.3 First Fixation Duration

The female participants had a higher first fixation on the face for both orientations and image sets (Fig 3c) and lower only for the sexual body parts of the upright female image. The difference between male and female participants did not achieve significance for both face and sexual body parts (p > 0.1). There is a significant effect of the target gender on the sexual body parts in an inverted position (Figure 43.7c). Within female images upright face > inverted face (z=-2.7191, p-value=.00652, effect size=0.2898), and inverted SB parts > upright SB (z=-2.5777, p-value=.00988, effect size=0.2747). Significance was not observed for the male images.

3.4.4 Navon Recognition Test: Response Times

The multiple comparisons were conducted by setting up a 2(participant gender) * 2(orientation) * 2(priming images) * 2(local/global response time) mixed model ANOVA with orientation, priming gender, response time in the Navon stimulus as within-participant factors and participant's gender as between participants factor. There is no main effect or interaction effect of participant gender on the response times($p>0.05$). Other than the main effect of the priming condition and interaction of the priming condition and recognition task, all other interactions did not reach significance.

To further verify the participant gender effect as the participant gender ratio was skewed, we sub-divided the male sample of size 44 into three sets of sizes 15, 15, and 14 to match the female set of 15. The Mann-Whitney test for the male sub-sample with the female sample for the response time data was applied to examine the participant gender effect. The process was applied for FD, FFD, and VC, wherein the male sample was divided into three sets of sizes 24, 24, and 16 and Mann-Whitney test applied with a female sample set of 24. As there were only 16 males in the third set, we added four random data points from each sample of size 24 to the third set. We did not find a significant participant gender effect for any parameters.

We calculated response times as the difference in the timestamp of the onset of the Navon image and the key press. Overall female participants responded faster for both local(global) recognition tasks in all priming conditions except for the global recognition task in the inverted female priming condition, but none of them reached significance, $p>0.05$(Figure 3.6d). We excluded participant gender in the further analysis as we did not find any significant main or interaction effect of participant gender on the response times. We only considered correct responses in each priming for calculating average local(global) recognition RT (Figure 3.7d); this reduced our data set to 59 participants (female: 15 and male: 44) as an entire participant data set was removed even if response for one stimulus set was incorrect. Although a very conservative approach analysing with eye tracking data would induce fewer errors.

After the Shapiro-Wilks test's distribution, the non-parametric Wilcoxon signed-rank test was applied to look for differences in response times across the conditions. The FI local response time was $>$ FI global in both upright ($z = 2.8644$, $p = 0.0042$, effect size = 0.37) and inverted ($z = 3.989105$,

p = 0.00006, effect size= 0.52) orientations. The MI global response $>$ MI local in both upright (z = 2.185,p=0.029, effect size = 0.28) and inverted(z = 3.5136, p=0.0002, effect size = 0.49) orientations. MI global $>$ FI global, significance was observed for both upright (z = 3.7325, p-value is $<$ .00044, effect size=0.46) and inverted (z = 5.6, p $<$0.00001 , effect size. = 0.73) condition. While MI local $<$ FI local, significance was observed only for upright orientation (z = 2.3436, p = 0.019, effect size = 0.31).

3.4.5 Correlation between local/global response time and fixation duration

We performed a correlation analysis to examine the transfer appropriate theory: whether gaze behaviour affected response time. The Kendall tau's correlation test was conducted to compare the FD and local (global) RT in the upright/inverted male/female priming conditions and none of the comparisons reached significance.

3.5 Discussion

The two primary hypotheses that this research tested are as follows: 1) the sexualised body inversion theory [18] and its applicability to visual gaze data on upright and inverted images while also considering the contest to this hypothesis [120], who identified a methodological artefact attributed to body symmetry and 2) local/global processing in sexual objectification, which extends the works reported[56]. An investigation of the Navon recognition task was carried out by means of a correlation analysis of the response time for local/global processing and fixation duration on the face and sexual body parts. We also made an attempt to infer configural processing as opposed to analytical processing based on the data collected from the visual gaze during the orientation presentation. Following the outcomes of prior studies(references – example: [18, 57]), We found a significant effect of priming on global recognition. Participants responded faster in the female compared to male image priming condition (Figure 3.6d), indicating a greater degree of configural processing when looking at female images, invalidating our hypothesis H1 that predicted global perception is more prominent when perceiving male images as opposed to female images. As for the local recognition task, the opposite effect is observed. That is, participants responded faster in the male priming condition compared to female priming condition. Al-

though the significance is only observed when primed with upright images but not the inverted images, invalidating our hypothesis H2. We did not observe any significant effect of inversion on the global/local response times in either of the priming conditions. When compared within the priming condition, the response time for global recognition task is lower when primed with the female image in both upright and inverted orientation. In contrast, the male priming showed the opposite effect. This suggests that male images are subjected to analytical processing (lower local RT, though not significant), while female images induce configural processing. That is, the results indicate that cognitive visual perception of non-sexualized male images is similar to objects than non-sexualized female images. This implies a greater 'transfer appropriate shift' in female priming conditions compared to male priming conditions and that female images are perceived more globally than male images. Our results are in contradiction to previously proposed theories that claim global(configural) processing is less important when visually processing a sexually objectified female image targets than non-objectified targets(Sexual body part recognition bias -[20, 21, 57]), but received support in a study based on Chinese demographics[137]. It is essential to keep in mind that the tasks of recognition in the aforementioned experiments involved sexualized body parts. Our results can be explained by the fact that we used non-sexualized stimulus pictures rather than ones that were sexualized(that is, showing more skin). Adding support to the previous studies[56, 89, 90, 88, 123], we did not find participant gender effect, either as a main effect or interaction effect.

According to the objectification theory, women have a greater propensity to be sexually objectified than men do. This is evident from our data, as the sexual body parts of female images garnered higher fixations than the male images in both orientations (Figure 3.6a,c). Visit counts analysis shows a similar trend; sexual body parts had higher visits than the face for male and female images Though the first FD data did not show a similar difference. The findings partially validate the hypothesis. In contrast to previous studies on gaze behaviour and configural processing, where increased attention to sexual body parts was at the cost of reduced attention to the face of objectified women [12, 54, 80], we observed (Figure 3.6a) higher fixation on the face (male/female images) in both orientations compared to the sexual body area, with only a marginal decrease for female faces. This finding is in line with results reported [103, 33] for non-sexualised images. The attention to the face in our experiment is noteworthy as it may indicate categorical social cognition [50, 91] interlinked with attractiveness/ beauty and social

status. For example, lighter skin tone is associated with higher social status and ranked higher on the attractiveness or beauty scale. Other markers like hair-style and attire provide cues on education, profession and socioeconomic status. Facial feature analysis extends to perceptions of career[81] or work choices; for example, a woman with makeup, accessories, and a non-traditional dress (a dress not recognised as part of the local culture) is considered engaged in work that is not intellectually challenging and hence is attributed lower agency. The particular study by [81], received criticism on social media by women, who questioned the reasons for conducting such a study. But the authors highlight the bias and perceptions applied to women with makeup and do not question the freedom of choice. Hence, the attention to face ($>$ sexual body parts) for male/female images could be an attempt to rank on either attractiveness or social categories. In our study, we used black/white photos, hence facial features and not skin-tone was being analysed. A follow-up experiment with variation in skin tone, information of social status or culturally identifiable markers would allow for the determination of the role of the specific facial feature in sexual objectification.

H4: Gaze on sexual body parts would be higher in inverted orientations for female target images indicative of analytical processing.

There is a difference in the distribution of visual attention when looking at male and female images in upright (vs inverted) positions. The participants fixated less on the face when looking at inverted images for both target gender, reported by [33] and the effect was found only for personalised images. The fixation duration for female sexual body parts was higher compared to male images in both orientations. The fixation duration was longer on sexual body parts in inverted (vs upright) position for both gender images (Figure 3.6a). The participants revisited (visit count) female (vs. male) sexual body parts more frequently when presented in an inverted position (Figure 3.6a,b,c). The first fixation duration analysis also showed that the inverted female images of sexual body parts were higher, while a similar difference was not observed for male images. The eye tracking metrics partially validate H4 as the orientation effect was observed in both target images. [18, 19], proposed that sexualised women images presented inverted will be processed as object-like recognition and the same was shown by the recognition task; in our study, we extended the theory to visual gaze behaviour. A higher or comparative gaze on sexual body parts and a decrease in the face region of inverted female images may imply analytical processing or objectification.

Chapter 4

Priming Effect of Objectifying music video on viewers gaze

4.1 Introduction

Visual content has the ability to capture the viewers' attention and they convey more information than other modes of communication [11]. Music videos are exceptionally significant due to their widespread consumption as a media entertainment, particularly among adolescent who watch them as an identity formation [32, 16]. Feminist scholar, Laura Mulvey first used the phrase "male gaze" in 1975 to describe how men look at women. The "male gaze" concept asserts that women are objectified and viewed primarily for their physical beauty in media and culture. For her part, she contended that this has led to an artistic history in which males like looking at girls who play passive characters in films. While the male gaze symbolizes how society teaches young girls that physical beauty is important for males' attention, it also teaches young boys that it's acceptable to perceive women as sexual objects [48]. Aligning with Mulvey's male gaze theory, [134, 58, 84, 97, 113]. This sends a strong message that women's bodies are more valued over their functional capabilities. Increases in unpleasant and self-conscious feelings might be a result of self-objectification brought on by prolonged exposure to sexual objectification [82] . Research has well established that objectifying media increases the endorsement of the sexually objectifying behaviors in men and tolerance towards sexual objectification in women [124, 135, 112] but the idea that objectifying content may force the viewers to gaze more on women's bodies is relatively new and only few studies have explored this area [80, 72].

In today's culture, all women are sexually objectified, but some more than others[48]. An individual's race [4](jezebel stereotype), ethnicity, beauty[98], national identity[26], implicit dehumanization

[116, 24] , demography etc. a play role in the frequency and intensity of objectifying experiences [48]. While the West is rife with hyper sexualization, South-Asian society, particularly India suffers from a combination of media hyper-sexualization and real-life desexualization of women [40]. South Asian men, for example, do not make all women the object of their look, but rather distinguish between those they consider to be appropriate subjects of gaze and those they believe should be shielded from it [40]. Cultural influences on the sexualization of women have been discussed in Fredrickson's theoretical framework, objectification theory, but few studies have examined the effect of culture on sexual objectification, particularly in conservative Asian countries [88, 25, 101]. The purpose of this study is to address the influence of media objectification on the youngster's gaze when looking female images and the role of cultural identity of the objectified target.

4.2 Hypothesis

According to media priming theory, Media exposure can briefly trigger concepts relevant to the viewed content. There are higher chances of using these activated concepts in the later relevant situations [115]. For example, exposure to media that focuses on the body of women may trigger similar gaze behavior when looking at a woman in real life., The chances and intensity of application of acquired objectifying gaze depends on the similarities shared by the real woman and the women in the media [85, 76]. Objectifying gaze, also known as male gaze is extremely prevalent in Indian culture. It is arguably the most common form of sexual objectification women face both in real life and in media [40]. Recent study on the media effects, reveal that acquired objectifying gaze in media is translated to real life when looking at women with slim bodies [80, 72]. In the present study, extending Karsay et al., (2018), we are addressing two issues in Indian context: 1) The effect of sexually objectifying media and non-objectifying media on the gaze, 2) objectification of traditional vs non-traditional women given the prejudice against non-traditional attired women. As the priming is presumably sub-conscious to the participants [13], we are using eye-tracking to capture the gaze behaviour of the participants. Participants gaze is captured in three states-

1) natural gaze without any priming 2) after watching sexually objectifying music video 3) after watching non-objectifying music video. We hypothesized the following hypothesises 1) Objectifying gaze is

more prominent in objectifying gaze priming compared to non-objectiying gaze priming and no priming i.e., participants fixate longer, revisit greater sexual body parts more than face in sex-obj mv priming. 2) Objectifying gaze is more prominent when looking at women in western attire (shirt pant, short dress) than traditional(saree, salwar). 3) Priming effect of objectifying gaze is greater when looking at women in western than traditionally clothed women.

4.2.1 Stimuli Selection

4.2.1.1 Images

12 Images of female models dressed in 4 attires were selected from the online shopping websites like Amazon, Myntra, etc., The attires were grouped into two categories 1) Traditional: Saree, Salwar and 2) Non-Traditional/Western: shirt-pant and short dress (above knee length). Randomised 4 images were presented post each priming condition sequentially. We only considered images of female models with thin body size as [78] showed that thin-bodied females are more vulnerable to media objectification as they conform to the media-promoted sexualized notion of women and objectification in general [54].

4.2.1.2 Music videos

For both priming conditions, we considered music videos with only female characters. In the sexualized music video the camera-gaze objectified dancers intermittently. For the traditional music video, we chose a folk-dance number (`https://www.youtube.com/watch?v=tzRFLMn4kpM`) with higher wide-angle shots instead and minimal zoom on the face or body parts. The song is titled "pinga" (250 + million views on youTube channel) and taken from a movie with a fictionalised version of a historical warrior "Bajirao Mastani". For sexualized video, we conducted an online survey in college which resulted in "Ashiq banaaya" (`https://www.youtube.com/watch?v=5nPNv6_d_kI`) song to be the most highly rated sexualized video out of the three videos selected initially, it is also the most viewed music video (in YouTube with 220+ million views) among the three. It features scantily dressed women dancing provocatively and includes camera gaze on the body parts.

4.2.2 Apparatus

Tobii Studio version3.3.2, a software application, is used to design the experiment. The Tobii x120 eye tracker is used to collect eye movements and gaze fixation. The videos and images were presented on an LCD display screen (60Hz).

4.2.3 Experiment Procedure

The study uses a within-subject design. There are two independent variables: attire (with four levels: Saree(Sar), Salwar(Sal), Shirt-Pant(SP), Short Dress(SD)) and priming condition (with three levels: no video:NV, traditional non-sexualised: TV and sexualised: SV). In accordance with the device specification, the participants were seated 51 to 71cms away from the 22-inch LCD screen connected to a CPU. The gaze coordinates were captured and extracted using the Tobii pro software. Following calibration using a nine-point target tracking procedure, the experimenter exited the laboratory space to ensure maximum privacy. Prior to the experiment, participants were informed that they will be watching music video clips and have to rate the attractiveness of women presented in different attires. 12 images (3 per each attire) were presented for 10 seconds each. The screen presented a follow-up question after each image asking the participant to rate attractiveness on a scale of 1 to 5 (1-pretty, 5-extremely beautiful). One minute music video was presented after every 4 images (Figure 4.1). The order of images and music video clips were manually randomised to ensure that images are evenly distributed for each priming condition. The text, images and videos used in this study were reviewed by the Institute Ethics Review committee and consent forms were provided. 91 subjects (23 female, 68 male) took part in the experiment after giving their informed consent to participate in the study.

4.2.4 Data Extraction

The Tobii IVT filter default parameter settings in Tobii studio software were applied in line with the guidelines proposed in eye-tracking research (e.g., [3, 4, 70]). The fixation duration threshold was set at 60ms [105]. AOIs were drawn around the primary sexual body parts(chest and hips covered in rectangle shapes) and the face(oval shape). These AOIs do not overlap. When conducting the comparative analysis, the hip and chest were combined as AOI's of the sexual body parts. The eye tracking metrics for the

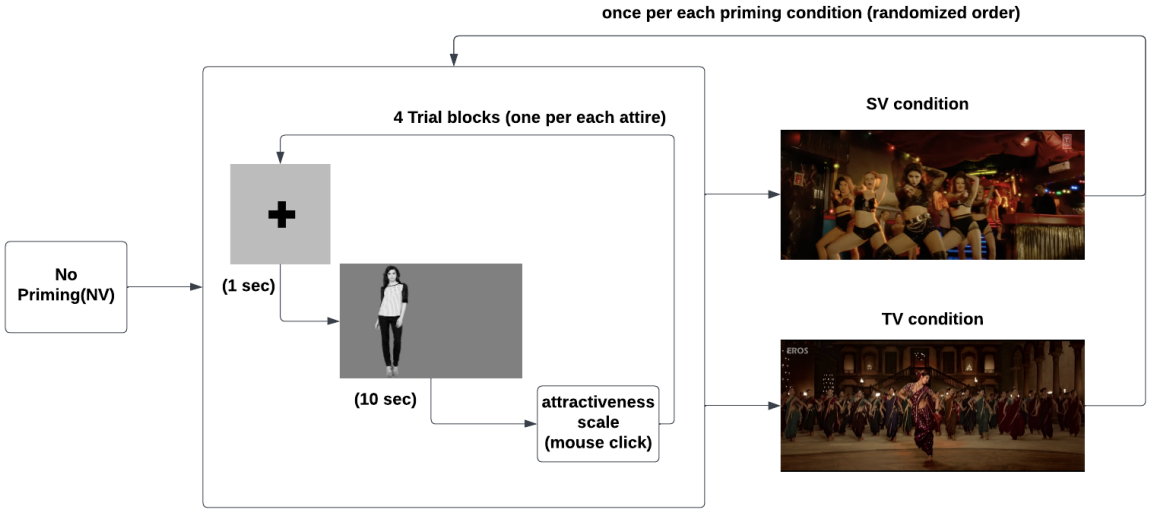


Figure 4.1: Experimental Paradigm

AOIs are as follows: 1) Fixation duration (FD), and 2) Visit count (VC). At the start of the experiment, a 9-point calibration task was performed, and one participant's data with a low sampling rate (<40%) was excluded from the analysis.

4.2.5 Statistical Analysis

The gaze score is quantified as the attention to face relative to sexual body parts(SB). That is, subtract gaze metric of sexual body parts from the gaze metric of face (Face - SB). We use the representation $FD_{face\text{-}SB}$ and $VC_{face\text{-}SB}$ for gaze scores. A low $FD_{face\text{-}SB}$ or $VC_{face\text{-}SB}$ score implies a greater objectifying gaze. Statistical analysis is conducted on both scores. Shapiro-Wilk test is not significant for $FD_{face\text{-}SB}$ (p values > 0.05) indicating the data is parametric while significant for $VC_{face\text{-}SB}$ ($p< 0.05$) indicating the data is non-parametric. Accordingly, we subjected the $FD_{face\text{-}SB}$ to a 2-way repeated measure ANOVA (attire X priming). For $VC_{face\text{-}SB}$, we used Friedman's 2-way ANOVA. Due to the skewed 1:3 female to male participant ratio, we did not include gender in ANOVA and conducted independent sample non-parametric t-test to examine the gender effect. Additionally, to look at the interaction effect, we conducted one-way ANOVA for $FD_{face\text{-}SB}$, and one way Non-parametric ANOVA (Friedman) for $VC_{face\text{-}SB}$ and Conover's test for post hoc.

4.3 Results

4.3.1 Effect of Priming

4.3.1.1 Main Effect of Priming

$FD_{face\text{-}SB}$: We found significant main effect of priming (Table 4.1). In SV priming condition, $FD_{face\text{-}SB}$ is significantly lower, as compared to NV and TV conditions (Table 4.2). This implies that objectifying gaze is more prominent in SV.

$VC_{face\text{-}SB}$: There is no main effect of priming on revisit frequency (p-values > 0.2).

4.3.1.2 Interaction effect of priming on attire

$FD_{face\text{-}SB}$: The mean $FD_{face\text{-}SB}$ scores for all attires fall in the order: NV>TV>SV. For Sar, SP, SD, the difference between NV and SV is significant (Table Table 4.3). For saree, the difference b/w TV and SV is significant (Table 4.3). For salwar, there is no significant difference between priming conditions.

$VC_{face\text{-}SB}$: There is no priming effect on saree and salwar. For SP, $VC_{face\text{-}SB}$ is significantly lower in SV compared to NV condition (Table 4.6). For SD, $VC_{face\text{-}SB}$ is significantly lower in TV compared to SV and NV conditions (Table 4.6).

4.3.2 Effect of Attire

4.3.2.1 Main effect of attire

$FD_{face\text{-}SB}$: There is significant main effect of attire (Table Table 4.1). Mean $FD_{face\text{-}SB}$ order is Sal>SD>SP>Sar. There is significant difference between Sar and Sal, SP, SD (Table 4.4). There is no significant difference between Sal, SP and SD.

$VC_{face\text{-}SB}$: There is no significant main effect of attire on revisit frequency ($p > 0.5$).

4.3.2.2 Interaction effect of attire on priming

$FD_{face\text{-}SB}$: In NV, mean $FD_{face\text{-}SB}$ is significantly greater in Sal compared to Sar. In TV priming, mean $FD_{face\text{-}SB}$ of Sar is significantly less than SAL, SP, SD (Table 4.5). In SV priming, there is no

significant difference between attires.

$VC_{face\text{-}SB}$: In NV, there is no significant difference between attires. In TV, mean $VC_{face\text{-}SB}$ of SD is significantly greater than Sar, Sal, SP (Table Table 4.7). In SV Priming, Mean score of SP is significantly lower than Sar and SD (Table Table 4.7).

4.3.3 Effect of Participant Gender

We found effect of gender on $VC_{face\text{-}SB}$ but not on $FD_{face\text{-}SB}$. $VC_{face\text{-}SB}$ is significantly lower for women compared to men for Sal and SP in TV, SD in NV and SV conditions(p-values$<$0.05).

Figure 4.2: Heat Map: color indicated density of fixation points. Red-highest, green-lowest

Table 4.1: $FD_{face\text{-}SB}$: ANOVA

	Df	F	P
Attire	(.960,263.425)	7.469	0.01
Priming	(1.894,168.578)	12.949	0.01
Attire * Priming	(5.435, 483.685)	0.91	0.48

Table 4.2: $FD_{face\text{-}SB}$: Main effect of Priming

		t	Cohen's d	P_{holm}
NV	SV	4.617	0.487	0.001
TV	SV	3.587	0.378	0.001

Table 4.3: $FD_{face\text{-}SB}$: Interaction Effect of Priming on Attire

			t	Cohen's d	P_{holm}
Sar	NV	SV	2.931	0.309	0.011
	TV	SV	2.76	0.291	0.013
SP	NV	SV	3.561	0.375	0.002
SD	NV	SV	2.961	0.312	0.012

Table 4.4: $FD_{face\text{-}SB}$: Main Effect of Attire

		t	Cohen'd	P_{holm}
Sar	Sal	4.197	0.442	0.001
	SP	3.605	0.38	0.002
	SD	3.746	0.395	0.002

Table 4.5: $FD_{face\text{-}SB}$: Interaction Effect of Attire on Priming

			t	Cohen's d	P_{holm}
NV	Sar	Sal	2.754	0.29	0.043
TV	Sar	Sal	2.663	0.281	0.037
		SP	2.863	0.302	0.026
		SD	3.339	0.352	0.007

Table 4.6: $VC_{face\text{-}SB}$: Interaction Effect of Priming on Attire

			t	Df	Wi	Wj	P_{holm}
Sal	NV	TV	2.496	178	196	165	0.04
SP	NV	SV	2.551	178	193	162	0.035
SD	NV	TV	7.052	178	214.5	125.5	0.01
	TV	SV	5.903	178	125.5	200	0.01

Table 4.7: $VC_{face\text{-}SB}$: Interaction Effect of Attire on Priming

			t	Df	Wi	Wj	P_{holm}
TV	Sar	SD	6.794	267	247	138	.001
	Sal		8.322	267	271.5	138	.001
	SP		6.576	267	243.5	138	.001
SV	Sar	SP	2.696	267	238	195	.045
	SP	SD	2.665	267	195	237.5	.045

4.4 Discussion

In this study, based on the media priming theory, we explored three hypotheses which are explained in detail.

H1: Objectifying gaze is more prominent in SV compared to TV and NV (that is: SV>TV>NV). We found a significant main effect of priming on $FD_{face\text{-}SB}$ which is less in SV than in NV and TV. This implies that participants spend lesser time fixating on face compared to sexual body parts in SV, validating the hypothesis. Our results support the findings of [80] who also reported the same for women with thin bodies post exposure to sexualised videos.

H2: Objectifying gaze is higher for women in western (shirt-pant, short dress) than traditional attire (saree, salwar). We found partial support of H2 in $FD_{face\text{-}SB}$. The female images in saree but not salwar are significantly less objectified than non-traditional attires. Although both the salwar and the saree are traditional, the latter is typically worn by married/older women, while younger women typically wear the former which is form-fitting and hence may be perceived as more feminine and attractive, eliciting a sexually evaluative objectifying gaze. But, women in traditional(salwar) and non-traditional are equally gaze objectified, which may imply that traditional conformity of the dress may not have significant influence on the objectifying gaze or it could be attributed to the demographic specific behaviour where salwar might not be as traditional as saree. This observation that there is no effect of attire on the gaze contradicts [54] but finds support in [80]. However, both of these studies studied the effect of attire in terms of degree of sexualization or skin exposure while we focused on degree of traditional conformity

over skin exposure or sexualization.

H3: Effect of SV priming is greater when looking at women in western than traditional attires. We did not find significant interaction effect between attire and SV condition, invalidating our H3. The hypothesis was situated on the media priming theory which states that the influence of the priming concept on a target is proportional to the degree of commonality between the priming stimuli and the target. Hence, we expected the participants to objectify western attire more than traditional as the SV condition contains women in short dress. Overall, we found that all attires are equally objectified when primed with SV, finding support in [80].

Interestingly for short dress, $VC_{face\text{-}SB}$ is lowest in TV condition. That is, participants revisited sexual body parts of the women in short dress significantly higher in TV compared to NV and SV. Though the relation between visit count and objectification is complex, in the context of the experimental paradigm, it is possible that the participants' attention/focus 'drifted' to the area of the body which was covered by attire in TV but not in the short dress (as indicated in heatmap,Figure 4.2) and attributable to change in features. Also $FD_{face\text{-}SB}$ of saree is significantly greater than other attires, which implies for TV, objectifying gaze is less in case of saree as compared to other attires. One possible explanation is that Saree is worn in traditional dance forms of the country. It can also be attributed to the social bias of traditionally dressed women being good. But, the inferences are limited as intention and explicit information on the subjective social or cultural bias data was not considered to run a regression.

Our findings suggest that objectifying gaze is more prominent in female participants compared to male participants as $VC_{face\text{-}SB}$ of females is lower than that of males when looking at images in shirt-pant, salwar in TV priming and short dress in NV and SV priming. This finding, though contradictory to expectations aligns with research that shows both men and women equally objectify women (e.g., [18, 69, 133, 80]). Nevertheless, the major difference is the intention of gaze objectification, with self-objectification theory [74, 123] being the driver for females while it is sexual in nature for the male gaze. These findings also support a study [8, 79], which showed that exposure to sexualised media can trigger state self-objectification in women.

Overall, our findings add empirical support to the objectification theory and large body of research [134, 72, 80]. From the study, it is observed that the exposure to SV, where gaze is heavily focused

on female bodies/body parts may prime the viewers to adopt this deviant body-biased gaze and subsequently apply it when looking at women in real life. Another possibility is that SV contains scantily dressed female characters dancing in a sexually suggestive manner, which may elicit arousal in men. Studies show that men objectify more when primed with a sex goal [133]. However, we cannot confirm this intention as we haven't checked for the arousal levels in our study. Alternate explanation can be that men are more likely to objectify women they are attracted to [133]. Hence, some religious clothing like chador is used to reduce a female's attractiveness by hiding her body curves [106]; it not only takes away the agency of a woman, but also conveys a false notion that women can avoid sexual objectification through traditional attires. However, Indian traditional clothing, which may or may not hide body curves, is not necessarily perceived as less attractive as compared to western attire. This may explain why salwar and western attire are equally objectified, as body curves are visible in both attires. We could not confirm it as we didn't collect the attractiveness score rated by participants.

Chapter 5

Conclusions

5.1 Conclusion

Although women, in general, are victims of sexual objectification, experimental research is predominantly focused on the role of sexualization in sexual objectification and tries to understand the objectification of sexualized women in comparison to men and non-sexualized women. While it is true that sexualized women are more objectified, non-sexualized women also experience sexual objectification in their everyday lives. This is especially true in the case of conservative and patriarchal societies like South Asia.

Emerging research has found that sexualized women are reduced to objects at sub-conscious level. Past studies suggest that visual perception of sexualized females is similar to objects, i.e., sexualized females are processed more locally. In the First study(chapter3, we investigated whether this phenomenon is extended to non-sexualized South Asian women.

Given the perennial focus on the female bodies and the frequent exposure to these objectifying media in everyday life, it is essential to understand the effect of the sexualized media on viewers' gaze. While numerous content studies provide empirical evidence for the objectification of women in media, very few studies have explored the consequences of exposure to these media on the viewers' gaze. In the subsequent study(chapter4), we investigated the priming effect of item songs, a popular genre in the Indian film industry known for the overt sexualization of female dancers. The study also addresses the prevalent cultural bias that non-traditional women attract greater objectifying actions than traditionally dressed women.

5.1.1 Objectifying gaze and Cognitive Visual Perception

We combined the inversion hypothesis and local/global processing as underlying constructs modulating visual gaze objectification with a unique methodology to address factors that affected previous studies (for example, duration of stimulus presentation, off-center positioning of the images, non-sexualized images, etc.). We also employed eye-tracking technology to capture the viewers' gaze when looking at the female images. Using a longer presentation time (7 seconds) compared to 100–250 ms [33] allowed the participants time to scan and focus on the whole body. The presentation of the images off-center removes the anchoring effect due to the fixation cross shown before the image.

We extended the findings of studies [20, 55, 56, 120, 130, 33] which have compared responses to full attire and short dress [33], partially clad men/women [71]. Overall, the analysis of the three eye-tracking metrics supports the theory of visual gaze behavior as a possible indicator of the underlying objectification process [5, 18, 21, 57] and the association between gaze behavior and objectifying attitudes [12]. Importantly, the gaze data reinforce the findings that men and women objectify women [31, 63, 123, 117]. Additionally, to the best of our knowledge, our study is the first study to investigate the visual gaze behavior of Asian-Indian participants when viewing non-sexualized male and female targets.

Skimpy or revealing attire is often cited as a trigger for sexual objectification and harassment in public/private spaces. That is, a woman is blamed for the deviant behavior of the men. However, it is observed that even modestly attired women are subjected to intrusive visual inspection and inappropriate touching in public and office spaces. This contrasts with a study that supports the concealment of a woman's body to reduce visual gaze [106]– though the study has been cited for the low sample size to make strong claims and conducted in a conservative society. But for a woman to fully cover her body in public raises the question of her rights over her body and of being reduced to an object to attract a mate or as an upholder of the family honor. It deprives her of agency and is another type of objectification.

5.1.2 Priming Effect of Sexualised media

This study provides strong evidence that there is a priming effect of objectifying music videos on viewers' gazes, and viewers' gaze-objectified more when looking at female images after watching sexually objectifying music videos, and targets' attire did not moderate the priming effect. We also found that female images in sarees are less objectified than in other attires. Female images in salwar, shirt-pants, and short-dress are equally objectified. A possible explanation for this behavior is that married/older women generally wear a saree, whereas salwar, shirt-pant, and short-dress are worn by young women. Hence, the perception of the sexual availability of women rather than their traditional conformity may play an important role in the sexual objectification of women.

In summary, intrusive visual gaze as objectification is evident even when women (& men) are in attires that are not sexualized (not showing skin). The findings from our study present evidence to confirm that a female is gaze objectified by both genders even when fully clothed. Our results also provide empirical evidence that sexualized media is one of the precursors to the gaze objectification of women in real life. Our work attempts to convey this social message of normalized behavior and add to empirical evidence.

5.2 Limitations and Future Scope

The First Study has a few limitations that future research studies can address. Body-biased gaze suggests visual attention but with little understanding of the underlying cognitive processes. Though eye tracking has been applied as a measure of behavioral processing, inferring meaning or intention when viewing body images is speculative. Further paradigms should have designs to differentiate the mechanisms of objectifying gaze due to self-objectification, sexual objectification, social bias, and moral judgment. In particular, gaze objectification within gender requires correlations to objectifying attitudes, system justification theory [28], empathy [33], rape victim empathy [23], and self-objectification due to intimate partner violence [52]. Similarly, male self-objectification [37, 77] has been linked to excessive emphasis on masculinity[36], but no direct link has been established to violence, attitudes, intentions, and personal traits of empathy. Hence, examining rape myth acceptance and gaze objectification may be interesting.

Secondly, the effect sizes are small or insignificant in few interactions, as the participants' demographics could be a factor. Reports [64, 107]have highlighted the perils of generalizing from student to general populations, as social attitudes are conditioned by prospects, education levels, and sense of autonomy. Future studies may extend the study to non-college-educated and older populations (with/out college degrees) for population-level inferences.

Interesting future research can focus on potential applications for awareness generation by priming – both positive and negative –implicit and explicit social bias. Most often, one is unaware of the harm of certain behaviors due to normalization (media influence, social structures, etc.). Combining the transient effect of priming and a longitudinal experimental study with sustained awareness building may lead to solutions.

A set of limitations imposed by the experiment design can be explored in future research to check for confounds due to design restrictions. One is the stimuli presentation with only one image on the screen, thereby forcing the participant to revert gaze on the image. A follow-up cut-back experiment can have more than one image, shorter stimuli presentation duration, or images with blurred facial features, headless or with other embedded objects or human images. Second, a holistic versus part-wise processing of objects of the Gestalt psychology, tested by the [102]letter task applied to look for transfer effect, that is, whether the processing type applied on human images affects response time on the Navon letter task is required to make associations. And following the observations reported for configural/global processing of full body[114]to headless human [96] wherein higher analytical/local processing or transfer effect was observed in face recognition task [92], it is important to connect the perceptual process [47] with Navon stimuli to sexual objectification. Further detailed studies may also explore constructs of objectification as listed by Nussbaum (instrumentality, denial of autonomy, inertness, fungibility, violability, ownership, denial of subjectivity) and the consequences of each on the treatment of the female gender in society for a deeper understanding of the genesis.

In the second study, the target women in the images were identical in body shape and age, limiting inferences on traditional attire and social stereotypes. A follow-up study on subtle differences within traditional attires (for example, saree versus salwar) would help differentiate the perceptions as a function of participants' demographics (north to south of the country). Without measuring arousal during

the priming conditions, we cannot assume that sexualized videos evoke higher stimulation in the male participants. Future studies should also focus on the self-objectification of Indian women.

The limitations notwithstanding, the findings are significant and highlight empirical evidence often discussed in public forums on the role of attire in the sexual objectification of women. The traditionality of their attire is not the only factor in preventing objectifying experiences, dismissing the popular notion that women can avoid sexual objectification by dressing traditionally. It also demonstrates the deep impact of sexualized dance sequences presented in commercial cinema on self- and other objectification in real life, particularly given the content's appeal to people of all ages and socioeconomic backgrounds.

5.3 Practical Implications

The two studies are the first of their kind, conducted on Asian-Indian college students, adding empirical evidence of a deeply normalized behavior– intrusive gaze on the human body. The gaze objectification, even with non-sexualized images, shows the prevalence of a social condition that needs awareness programs. As discussions on women's safety, security, and empowerment emerge, the evidence can have policy-level implications. The findings also support previous observations on gaze objectification of a female body even in fully covered attire, and exposure to objectifying media forces users to adopt the objectifying gaze when looking at women. The objectifying gaze not only plays a crucial role in the dehumanization of women in social interactions, it also leads to diminished social presence and a range of mental health disorders in women. The studies also showed that both genders objectify the female body. This understanding can assist in designing interventions to create awareness of gaze behavior. The feedback about one's gaze position on the human body, its effect on the target, the gender role beliefs, and the unconscious social biases driving it will significantly impact attitudes.

Related Publications

1. Objectifying gaze- An empirical study with Non-sexualized images. Bhupathiraju Krishna Srija, Ayushi Kumari, Agrawal, Priyanka Srivastava, Kavita Vemuri, Annual Conference of Cognitive Science(ACCS9), 2022.

2. The Objectifying Gaze: Impact of Sexualized Media on Viewer Gaze Behavior towards (Non)Traditional Attire. Bhupathiraju Krishna Srija, Ayushi Kumari, Agrawal, Kavita Vemuri, Cognitive Science Society(CSS)2023.

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