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Sexual Objectification, Perceived Similarity and their Relation to Empathy

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Contents

Introduction

Perceiving and being perceived – both are subjects that have interested a wide array of disciplines, particularly philosophy and psychology. These concepts hold relevance in our dailylives, especially since the perception, and subsequent evaluation, by other humans profoundly impacts the nature of interactions and treatments a person receives. Many researchers have tried to unravel the underlying mechanisms that influence individuals to respond negatively or positively towards others. One of the most interested in concepts is that of empathy.

Empathy, broadly defined as the capacity to vicariously feel and understand another person's point of view, has been established as a predictor for concern, prosocial behavior and general positive human interaction. Much of the scientific literature regarding empathy showed findings depicting the positive outcomes it has on helping behavior, positive attitude towards people and social connectedness (Decety et al., 2016; Singer & Lamm, 2009). Hence, it's plausible to assert that the degree of empathy predicts the quality of reaction or interaction a person might receive. Empathy, however, is no static concept and is influenced by a myriad of factors, such as social context, mood, etc. One such factor thought to influence empathy is the perception of the other person's attributes, with the idea of (sexual) objectification being one proposed possibility of reducing empathy (Baron-Cohen, 2011; Decety et al., 2016).

Objectification roughly refers to viewing another person as a mere object, devoid of intrinsic value, and reducing them to a tool (E. Papadaki, 2007). Sexual objectification further specifies this definition by adding that a *sexually* objectified person is reduced to their sexually connoted body parts, stripped of humanness, leading to an exploitation of their bodies for consumption (Fredrickson & Roberts, 1997). Indeed, the consequences of sexual objectification seem to also be observable in experimental conditions: a growing body of research reported findings such as decreased ratings in intellect, warmth, and morality towards sexually objectifiedindividuals. Moreover, the negative evaluations foster further consequences. Studies reported negative reactions towards sexually objectified individuals such as less moral concern, increased aggressiveness, decreased empathy, and decreased prosocial behavior (Cogoni et al., 2018; Decety et al., 2016; Loughnan et al., 2010). Additionally, the gender[1] of the target of sexual objectification seems to be of

[1] Gender and sex will be used interchangeably in this thesis, since only cis-people were recruited as targets and participants. However, the author would like to acknowledge that gender and sex are two separate constructs that exist beyond the binary of male and female

importance: many studies are only reporting sexualized women being sexually objectified, while the effect of sexualization on men is inconclusive. Similar to the effects of sexualization, many consequences of sexual objectification seem to mostly affect female targets, as well (Bernard et al., 2012; Vaes et al., 2011). These findings further stress the dangerous ramifications of sexual objectification and the need for more research, especially while keeping the gender of the targets in mind.

As mentioned above, empathy is not a fixed trait but gets influenced by various aspects. Perceived similarity to another person seems to be another such aspect influencing human interaction. Majdandžić et al. (2016) found that empathy diminishes when the target is seen as dissimilar to oneself. Furthermore, Neumann et al. (2013)found that people felt more empathy for ethnically similar people. However, while some studies suggest that empathy diminishes when the target is perceived as dissimilar, the role of perceived similarity remains debated, with other studies finding little to no effect or relationship regarding similarity (Batson et al., 2005; Pagotto, 2010). Furthermore, Vaes et al.'s (2011) findings linked sexual objectification with similarity: women who objectified other women distanced themselves from them. All in all, the role of similarity on empathy, and sexual objectification, is quite uncertain, necessitating furtherresearch.

Taken together, the current study will explore the interrelationships between sexual objectification, empathy, and similarity. The rationale for this investigation is evident: gender- based violence affects one in three women, which is thought to be caused by reduced empathy (Decety et al., 2016). Gender-based violence has severe physiological and psychological consequences, including injuries, diseases like HIV, mental health disorders like PTSD and, in the worst case, homicide and suicide (WHO, 2013; 2021). Therefore, understanding the mechanisms behind sexual violence is crucial for its reduction and prevention, safeguarding the psychological and physiological health of women.

Hence, the primary objective of this study is to delve into the intricate relationship between empathy and sexual objectification. It aims to deepen the understanding of how clothing impacts objectification in humans and, subsequently, how sexual objectification influences empathy. The second objective of the study seeks to shed light on the role of similarity on the relationship between sexual objectification and empathy. In a first step, empathy, sexual objectification, and similarity will be discussed regarding their definitions, implications, and their interrelations. Then, the methods will be presented. Lastly, the results

will be reported andwill be discussed in the last chapter, together with the strengths and limitations of this study.

Theoretical Background

This chapter will explore different relevant notions and concepts to this study and willhighlight their respective relationships to another.

Empathy

Empathy, as a highly complex and multifaceted concept, has been subject to many attempts at definition. While broadly defined as the capacity to understand another person from their frame of reference and to vicariously experience a person's feelings and thoughts from theirpoint of view and not one's own (APA, 2024) the scientific community seems to grapple with a consensual definition of empathy. Cuff et al. (2016) presents 43 distinct descriptions of empathy existing in current scientific literature, highlighting the struggle of reaching an agreement. The overlapping contents of the multitude of definitions seem to emerge as the reason for the conceptual hardships of empathy: concepts such as sympathy (concern about another person's well-being) and compassion (sharing another person's feelings), theory of mind, or pity (feeling sorry for another person), to name a few, are included (or excluded) in varying compositions within the definitions of empathy (Cuff et al., 2016; Singer & Lamm, 2009; Van Dongen, 2020). Empathy thus seems to act as an umbrella term, under which many of the notions above seem tofall into.

While a complete discussion on the specifics warrants its own research and would go beyond the scope of this master thesis (for more in-depth discussion, see Cuff et al., 2016; Eklund & Meranius, 2021; Weisz & Cikara, 2021), one highly debated, important aspect of empathy is its distinction from, or equivalence to, sympathy or compassion. Various research points to empathy and sympathy (or compassion) being distinct concepts. Here, it is argued thatempathy induces and mirrors the perceived feelings in the self, as in feeling WITH another person. Meanwhile, sympathy and compassion do not necessarily involve mirrored feelings butrather acknowledging the others' feelings, as in feeling FOR another person (Batson, 2009; de Vignemont & Singer, 2006; Niezink et al., 2012; Singer & Lamm, 2009; van Dongen, 2020).

Despite the theoretical differences, at least four distinct themes seem to be of importance to many of the empathy notions (Eklund & Merianus, 2021; Cuff et al., 2016). These themes include understanding another individual's feelings on a cognitive level, feeling the other individual's feelings on an affective level, similarity in the quality of the felt emotion between self and other, and a distinction between the other and the self. Thus,

due to the fact that one needs an 'Other' to empathize with, there is clear consensus that empathy is a social emotion by nature. This is corroborated by various studies linking increased empathy to different positive social outcomes: it is thought to be an integral part in promoting prosocial behavior and greater interpersonal connectedness (Decety et al., 2016; Kardos et al., 2017). Furthermore, research shows that empathy can be induced even by imagining another person and perceiving that otherperson's emotions (Cogoni et al., 2018).

All in all, empathy can thus be seen as a highly complex phenomenon needed for positive human interaction and, even though theoretically distinct, strongly interconnected with related concepts such as sympathy and compassion.

Components of Empathy

Although an absolute consensus on defining empathy is not reached, a growing body of research robustly recognizes, at least, two different components of empathy, with a third one being still debated if it is a distinct construct or a component (more details in following section).The components are closely related to the four themes brought to light by Eklund and Meranius (2021) mentioned above.

The first one is *affective empathy*, which is defined as vicariously experiencing the observed emotions of others and is thought to stem from unconscious phenomenon such as emotion contagion or experience sharing (Shamay-Tsoory, 2011; Weisz & Cikara, 2021). Emotions are recognized by way of observing facial expressions, gestures, body language or voice intonations (Reniers et al., 2011; Spaulding, 2017). The second component is *cognitive empathy*, described as the ability to take in and understand another person's perspective, mentalizing their thoughts and experiences (Weisz & Cikara, 2021; Shamay-Tsoori, 2011). It is strongly linked to the Theory of Mind (Premack & Woodruff, 1978), a concept defined as the capacity to attribute independent mental states (such as emotions, beliefs, intentions) to oneself and to others, and thus be able to infer and predict the thoughts and behavior of others (C. Batson, 2009; Gallagher & Frith, 2003). Cognitive empathy is achieved through retention and manipulation of the others' mental states in the mind while simultaneously comparing their owncognitive state with that of the 'empathizee' (Reniers et al., 2011; Spaulding, 2017).

The theory of two distinct components is supported by studies with populations in which either affective empathy or cognitive empathy is less pronounced. For example, Mazza et al. (2014) and Quinde-Zlibut et al. (2021) both reported lower scores on cognitive empathy for individuals with autism spectrum disorders (ASD) in contrast to neurotypicals

(NT) while affective empathy was roughly the same for the ASD-group and the NT-group. A meta-analysis corroborated those findings and showed that across 35 studies similar results were reported (Fatima & Babu, 2023). Furthermore, a distinction between the empathy components can also beobserved in neuroimaging studies at a neural level. Several studies were able to show that cognitive empathy and affective empathy operate through different neural circuits (Levy et al., 2019; Masten et al., 2011; Shamay-Tsoory, 2011; Yu & Chou, 2018). While distinct components, it is believed that an intricate interplay of both processes result into what we understand and know as empathy (Kanske, 2018; Reniers et al., 2011)

While still debated, some research also distinguishes a third component known as *motivational empathy*, also referred to as empathic concern. It is defined as the wish to comfort ahurting person, lessen their suffering and promote the well-being of others (Cowell & Decety, 2015; Marsh, 2018; Olsson et al., 2016; Weisz & Cikara, 2021). The controversy over being included/excluded as a component is due to its overlapping definition with compassion and sympathy, hence leading to a debate over the classification of motivational empathy. This debate is closely linked to the disagreement concerning the conceptual distinction between empathy andsympathy/compassion. There are thus two camps: those who merge sympathy and empathy into one concept, even if only as a subcomponent (McAuliffe et al., 2020; Pavey et al., 2012; Rochat, 2023; Surguladze & Bergen-Cico, 2020; Weisz & Cikara, 2021) and others who advocate differentiating the concepts (Cuff et al., 2016; Lishner et al., 2011; Niezink et al., 2012). Since the current study focuses solely on cognitive and affective empathy, and since a more in-depth discussion would exhaust the capacity of the thesis, no standpoint will be made regarding the classification of motivational empathy.

Taking the findings together, several studies have shown evidence suggesting that empathy operates through, at least two, different components and that empathy is crucial for positive interpersonal relationships.

Empathy for Pain

If empathy is the capacity to vicariously understand and feel another person's thoughts and feelings, then empathy can be potentially felt from a myriad of sources of both negative andpositive feelings. Indeed, research has shown that people have empathic responses to both positive (Jabbi et al., 2007; Morelli et al., 2015) and negative emotions respectively situations (Cogoni et al., 2018; Decety, 2011; Singer & Lamm, 2009) albeit with a clear focus on empathy for negative emotions (Andreychik & Migliaccio, 2015;

Morelli et al., 2015). The focus of the current study will be on empathy for negative emotions as well, based on the goal of the study toexplore mechanisms behind the reduced empathy for the plight and hurt of sexually objectified individuals.

While not an emotion per se, pain is one of the most basic bodily sensations and strongly linked to negative feelings since pain, in most cases, is something most people try to avert (Woolf, 2010). Exposure to the pain of others has been successfully used to induce empathetic reactions, both cognitive and affective empathy, and increased empathy for pain has been linked to increased prosocial behavior (Cogoni et al., 2018; Kogler et al., 2020; Singer & Lamm, 2009). Exploring empathy through empathy for pain thus emerges as a scientifically appropriate approach.

Empathy and its Conditions

Empathy is not static, but is actually influenced by various aspects, including individual differences, motivational factors, and contextual influences (Zaki, 2014). Research has shown that the capacity for empathy varies widely across individuals, ranging from individuals feeling little to no empathy to individuals reporting high levels of empathy, with a normally assumed distribution (Baron-Cohen, 2011; Riess, 2017). Additional factors influencing empathy range from feelings of outgroup/ingroup (Cikara & Van Bavel, 2014; Neumann et al., 2013), the presence of multiple observers (Mascia et al., 2021), quality of the relationship between empathizer and 'empathizee' (Main et al., 2017) to even type of employment (e.g. medical staff) (Hojat et al., 2001). This highlights the susceptibility of empathy to the possibility of modulation and enhancement, encouraging the formation of positive relationships and once more showcasing the importance of understanding the mechanisms behind empathy.

Two phenomena documented in experimental studies are of particular interest to this thesis. The first one is the decrease in empathy towards individuals judged by their physical appearance, especially when dressed in a manner perceived as provocative or revealing, often associated with tight clothing and significant skin exposure (Cogoni et al., 2021). The second phenomenon is the tendency to report less empathy towards individuals perceived as dissimilarto oneself (Majdandžić et al., 2016; Vaes et al., 2011). Both will be further discussed in the subsequent chapters.

Sexual Objectification

Objectification is a notion central to many of contemporary feminist literature and theory, but its roots lie deep into the history of philosophy, with Immanuel Kant writing about the perception of another person as an object as early as the 1770s. Kant posits that the most humiliating act an individual can be subjected to is being objectified to be used and instrumentalized by another person. The objectified person is stripped of their humanity and worth and is, according to Kant, lowered to the status of an animal or object, thus excluded fromsociety (Papadaki, 2007).

Martha Nussbaum (1995), an American philosopher, further builds upon Kants theory and broadens her definition on objectification. She theorizes that instrumentality is but one of the ways in which an individual can be sexually objectified. Further notions are as follows: denial of autonomy, inertness (lacking in agency), fungibility (interchangeable with other objects), violability (something allowed to be broken), ownership, and denial of subjectivity (experiences/feelings of concerned person not taken into account). A person is then objectified when treated in one or more of the ways mentioned above. Objectification is inherently negative according to Kant, but Nussbaum postulates that, when done consensually and respectfully, objectification can have neutral/positive outcomes. This study, however, will only focus on the negative impact objectification has on empathy (for further discussion, see Papadaki, 2010).

In objectification theory, coined by Fredrickson & Roberts in 1997, the focus of the discussion on objectification is shifted onto *sexual* objectification, specifically the sexual objectification of women. They state that sexually objectified women are reduced to their sexually connoted body parts (e.g. cleavage/chest, legs, rear) and stripped of humanness, leaving the commodified body as a tool for consumption and sexual gratification. This in turn leads to negative consequences for the objectified women, such constant body monitoring, internalized bodily standards, and anxiety, fear, and shame if the standards are not met. They further state that, due to living in patriarchal systems and structures, people perceived as women constantly live under the threat of being sexually objectified, shifting the locus of control away from the objectified person and adding further stress to the self-image women have of themselves. Furthermore, sexually objectified individuals are simultaneously taught that being sexually attractive is a necessity, harboring further potential for mental health risks and dissonant thoughts (Fredrickson & Roberts, 1997).

While the bulk of the literature focuses on the sexual objectification by men towards women, it is important to note that in many studies, no gender differences emerged

regarding who assumes the role of the "objectifier", meaning women and men were as likely to objectify other women (Heflick et al., 2011; Loughnan & Pacilli, 2014; Vaes et al., 2011). Research on who gets objectified, however, is far more mixed. Loughnan & Pacilli (2014), for example, did not report any gender effects between women and men getting objectified. Other studies reportedfindings indicating that sexualized men were perceived more negatively and were attributed less mind than non-sexualized men, albeit with a smaller effect compared to women (Gray et al., 2011; Loughnan et al., 2010).

Conditions and Mechanisms of Sexual Objectification

Since the inception of sexual objectification, studies have tried to pinpoint the framework needed for sexual objectification. What are characteristics that may lead individuals to be subjected to sexual objectification? Earlier literature (Fredrickson & Roberts, 1997; Nussbaum, 1995) posits that merely being perceived as a woman is "reason" enough to be objectified.

While, as mentioned above, it still holds true that women seem to predominantly bear the brunt of sexual objectification, recent studies have tried to delve deeper into this issue. While some studies focused on things such as weight (Holland & Haslam, 2013) or waist-hip-ratio (Gervaiset al., 2013), they still can be summarized into one of the most common grounds for sexual objectification: being perceived as sexualized and attractive (Loughnan & Pacilli, 2014).

Sexualization is the deliberate presentation of an individual in (socially constructed) sexual implications, such as certain poses or clothes (Choi & DeLong, 2019) and often acts as a source for sexual objectification, either experimentally in studies or in everyday life (Morris et al., 2018; Vaes et al., 2011, 2013). While often used interchangeably and unmistakably linked, sexualization as a concept is broader and does not inherently include sexual objectification. It can be either focused on beauty or sexual appeal (Morris et al., 2018; Ward, 2016). Sexualizing behavior can encompass more subtle acts such as gazing (Bareket et al., 2019; Fredrickson & Roberts, 1997), and more overt acts such as catcalling and unwanted approaches (Ward, 2016). Sexualization and the resulting behavior, as outlined in the theories of Fredrickson & Roberts (1997) and Nussbaum (1995), emphasize the body of the sexualized person, diminishing the value of their personality and reducing them to an object used for (sexual) pleasure.

Furthermore, research has found that being conventionally attractive exacerbates the effects of sexualization on sexual objectification. Both being a heavier weight and having a higher waist-hip ratio and smaller breasts, which are both not deemed desirable by current

social convention, diminished the effects of sexualization (Gervais et al., 2013; Holland & Haslam, 2013). However, this does not absolve the women of harm: not conforming into social beauty standards harbors its own risks, as it is associated with low self-esteem, increased risk for eatingdisorders, depression, anxiety, and difficulties in interpersonal relationships (Frederick et al., 2015). Langton (2009), on the other hand, even argues that any focus on a woman's physical appearance, regardless of societal norms, constitutes a form of sexual objectification, as it reduces her worth to her body alone, even if the body is not judged as desirable.

The focus on the body is the central aspect of sexual objectification and has been linked to a phenomenon called dehumanization (Haslam, 2006). According to Haslam (2006), there are two forms of dehumanization: mechanistic, object-like dehumanization, which denies a person their human nature (such as warmth or emotionality), and animalistic dehumanization, which denies a person uniquely human attributes (such as rationality or morality). It is thought that, depending on the purpose and presentation of the individual, people are objectified in different ways. Individuals presented with a focus on beauty tend to be seen as more animalistic while a focus on sexuality is linked to mechanistic dehumanization, i.e. people being perceived as objects (Morris et al., 2018; Morris & Goldenberg, 2015; Vaes et al., 2011).

The perception of sexualized individuals as objects can be even traced back to neural studies showing that sexualized bodies are not only cognitively seen as objects, but even processed in similar fashion to objects like chairs, activating different brain areas than when perceived as a human being (Bernard et al., 2012; Cogoni et al., 2018).

In summary, the conditions and mechanisms behind sexual objectification encompass factors such as gender, sexualization, and societal beauty standards. Understanding these multifaceted influences is crucial for addressing and mitigating the impact of sexual objectification in society.

Consequences of Sexual Objectification

Sexual objectification, as previously defined, is reducing the objectified person to their body, ignoring their personality, agency, and mind. It is commonly thought to occur by way of dehumanization. It seems reasonable, as postulated by Simon & Gutsell (2021), to therefore view objectification and dehumanization as a failure to recognize the cognitive and emotional complexities of a person, leading to reduced empathy towards them.

In line with Simon and Gutsell (2021) and objectification theory (Fredrickson & Roberts,1997), studies exploring the effects of sexual objectification support many of their

claims. Sexually objectified individuals are generally seen as inferior in terms of positive attributes, such as intelligence, warmth, morality, competence, trustworthiness, and humanity (Heflick & Goldenberg, 2014; Loughnan et al., 2013; Nezlek et al., 2015; Vaes et al., 2011, 2013; Wollast etal., 2018). These negative evaluations in turn seem to translate into harmful actions. Loughnan etal. (2010) report that participants in an experimental context were more willing to harm a sexually objectified individuals by way of painful tablets in comparison to non-sexualized targets. The negative effects stretch across many studies, many of which are reporting reduced empathy, less moral concern, increased aggressiveness, and decreased prosocial behavior towards sexually objectified individuals (Bernard et al., 2020; Fasoli et al., 2018; Loughnan et al., 2013; Pacilli et al., 2017; Vaes et al., 2011). These seem to increase occurrences such as victim-blaming and victims being held responsible for rape (Holland & Haslam, 2016; Loughnanet al., 2013) while the perpetrators of the crimes above are blamed less (Bernard et al., 2015).

Furthermore, exposure to sexual objectification (and living in a patriarchal society in general) is posited by Fredrickson & Roberts (1997) to result in *self-objectification*. Self-objectification is characterized by adopting a third-person view on the own body and treating it as an object and tool, rather than of fully inhabiting it as a person or subject. Drawing from feminist ideas, such as proposed by Iris Marion Young and Simone de Beauvoir, the authors suggest that individuals socialized as women often become preoccupied with the maintenance oftheir physical appearance, as its evaluation by (predominantly) men dictates any subsequent life experiences. These claims appear to be supported when reviewing the aforementioned studies above, such as Loughnan et al. (2010) and Holland & Haslam (2016). Another example constitutes the ongoing emphasis on physical appearance persisting in discussions on sexual assault, as evidenced by questions such as ‘What were you wearing?’ (Birns, 2018).

Taken together, the physical appearance, sexualization and subsequent sexual objectification has an immense impact on the life of concerned individuals, leading to a constant evaluation and monitoring of one’s own body and how it might be perceived by others. Sexually objectified individuals are consistently shown less empathy than non-sexually objectified individuals, leading to less prosocial behavior and increased violence and aggression. This mental load and constant threat are thought contribute to mental health problems of objectified individuals, such as depression, anxiety, and shame (Calogero, 2012; Fredrickson & Roberts, 1997).

(Dis)similarity

"Birds of the feather flock together" – while a cliché, the saying poignantly describes similarity and its effects it is thought to have on attraction and relationship formation. In interpersonal contexts, similarity refers to the sharing of characteristics between two or more individuals. These characteristics can range from traits like personality, interests, values, and attitudes to physical appearances, such as skin color, ethnicity, age or even clothing styles. It has been linked to an increase in attraction and liking between individuals, known as the similarity effect. It can manifest as either *actual similarity*, such as people genuinely having the same interests or similar characteristics, or *perceived similarity*, as in a person merely thinking that another person has similar interests or characteristics (Byrne & Nelson, 1964; Montoya et al., 2008).

The distinction between actual and perceived similarity has been of importance, with many studies finding discrepancies between effects of real and perceived similarity on concepts such as attraction, friendships, or romantic relationships. Once both concepts were accurately distinguished, studies consistently showed that actual similarity has little to no predictive valuetoward attraction in established relationships as well as in initial attraction between strangers. Perceived similarity, however, was reported to predict attraction more accurately than actual similarity (Campbell et al., 2015; Luo et al., 2015; Montoya et al., 2008; Tidwell et al., 2013). In other words, people were more attracted to another person when they thought that they were similar, regardless of if actual similarity scored high or low between individuals.

In social psychology, similarity has also been proposed as a mechanism for in-group and out-group effects, which, among other things, postulate a bias to attribute positive views towards in-group members and negative views towards out-group members. The resulting effects are also known as out-group homogeneity ('They are all the same'), in-group favoritism, and out-group derogation (Presaghi & Rullo, 2018). These in-group/out-group effects have been a point of interested in psychology for a long time and have been researched extensively. The effects can be caused by either "naturally" formed groups, such as ethnicity, culture, or nationalities (Abbink & Harris, 2019) or by arbitrary group formation, such as famously described by Sherif & Sherif in their Robbers Cave Experiment (1954), where hostility and antipathy between the two made-up groups even persisted after reconciliation (Tavris, 2014), or by Tajfel in his minimal group paradigm (Otten, 2016). The initial placement of individuals into groups is a phenomenon known as *social categorization* and seems to occur autonomously and spontaneously depending on contextual and

individual cues given by the other person (Karnadewi & Lipp, 2011; Liberman et al., 2017; Weisman et al., 2015). Social categorization is thought to be based on two theoretic mechanisms: *social identity theory* (Tajfel & Turner, 1979) and *self-categorization theory* (Turner et al., 1987)(Otten, 2016).

Social identity theory posits that people categorize themselves into various groups and that these groups form the identity of a person. If the markers of the groups are made salient, people tend to overemphasize the perceived similarities among their group members and to overemphasize dissimilarities between them and the out-group members, prompting a contrastbetween "us" and "them" (Hornsey, 2008; Presaghi & Rullo, 2018; Trepte & Loy, 2017).

Self-categorization theory states that an individual possesses a social ("We") and a personal ("I") identity. Again, if markers of groups are made salient, people tend to not see themselves as a person but rather as an interchangeable part of the in-group. They see themselves as representative and extensions of the in-group, so any praise or critic against the in-group is a praise or critic against themselves (Haslam & Ellemers, 2011; Hornsey, 2008; Presaghi & Rullo, 2018; Trepte & Loy, 2017).

The theories of in-group favoritism and out-group derogation appear to hold across experimental testing: Various studies reported negative effects for the out-group: a decrease in prosocial behavior, an increase in negative stereotypes and prejudice, a decrease in empathy, and, in the worst case, a decrease in human attributes (Amiot et al., 2014; Mashuri & Zaduqisti, 2014). The reverse seems to be true for in-group members, namely an increase in empathy and prosocial behavior, a higher inclination to forgive/overlook faults, and feelings of social connectedness (Cadsby et al., 2016; Fu et al., 2012). However, some studies also reported the opposite effect, as in in-group members being judged and prosecuted more harshly than out-group members, particularly among minority or non-dominant groups (Ashburn-Nardo et al., 2003; March & Graham, 2015; Rudman et al., 2002). The effect, also known as the black-sheep-effect, was suggested to occur as a protection mechanism in response to infractions of in-group members seen as so grave that they could jeopardize the worth of the group as a whole or their position in the status-quo (Pinto et al., 2010; Reiman & Killoran, 2023).

Taken together, perceived similarity, seems to have serious implications on the formation and maintenance of relationships, also seeming to guide how humans approach and accommodate other people. It is thought to act as a mechanism for in- group and out-

group effects. Thus, understanding the underpinnings of similarity appears to be acrucial step into understanding social interaction.

Similarity and Empathy

As previously mentioned, empathy, as the capacity to feel and understand another person's perspective, may vary by various factors. As such, (dis)similarity, an established concept influencing human interaction initiation, has been a point of interest in empathy research. The exact role of similarity on empathic behavior, however, appears to be somewhat debated, with the main bulk of the studies finding effects and a few others little to none.

In a study by Neumann et al. (2013), for example, people felt more empathetic towards ethnically similar people in negative situations. Other studies reported the out-group equivalent, with participants reporting lower empathy and less helping behavior for ethnically dissimilar individuals (Avenanti et al., 2010; Forgiarini et al., 2011). McKeever (2015) found that people reported increased levels of empathy for people with depression when reading a text about a similar-to-them person suffering from depression beforehand. In regard to physical pain, a neuroscientific study showed that participants self-reported feeling less empathetic towards people perceived as dissimilar (Majdanžić et al., 2016). Vaes et al. (2011) investigated the underlying causes for sexual objectification and reported that women distanced themselves from, or viewed themselves as dissimilar to, the women they sexually objectified and dehumanized. Considering that dehumanization equals less empathy (see sections above), the findings can be interpreted as reduced empathetic feelings.

Other research, however, paints a different picture on the role of similarity. Some studies find no results indicating that (dis)similarity influences empathy ratings, as shown by Batson et al. (2005) or by Pagotto (2010). Some even found the opposite: Israelashvili et al. (2020) reported that similarity between the participant and target actually diminished empathy by inhibiting emotion recognition in the participant, with similar findings emerging in the study by Hodges et al., 2010).

The discrepancies between the results may arise due to inconsistent operationalization of similarity across the studies, with some studies using similarity to past experiences (e.g. Dvir &Nagar, 2022) and other studies focusing on the physical similarity between participants (McKeever, 2015; Bates, 2005). Vaes et al. (2011) did not even use a similarity task or questionnaire per se, but rather formed a closeness index. Furthermore, the questionnaires used to assess and check for perceived similarity varied across most of the

studies, with most of the researchers using a variation of the statement “I feel similar to this person”.

Perceived similarity thus appears to be strongly linked to human interaction and, in the majority of the studies, seems to play an important role in inducing respectively inhibiting empathy towards certain groups of people. The findings, however, seem somewhat diverse, necessitating further research to disentangle and further understand the effect that similarity is thought to have on empathy.

Perceived Similarity and Sexual Objectification

As of new, the effects of similarity seem to emerge as a point of interest to researchers scientifically involved in the topic of sexual objectification. As mentioned above, Vaes et al. (2011) found in their study that women actually distanced themselves from other women the more they dehumanized, or objectified, them. The study explained this relationship by way of in-group effects, judging in-group members more harshly when they pose a threat to the social and moral integrity of the whole in-group. Interestingly enough, the effect was reversed for male participants: men felt closer to the women they objectified, a relationship which seemed to be influenced by sexual attraction or sexual goals towards the women in question (Vaes et al., 2011).

Influenced by a study by Miller et al. (2010), who found that experience similarity may predict rape victim empathy and in turn victim-blaming behavior, Dvir & Nagar (2022) also examined how similarity of experience would affect victim-blaming behavior. In their study, they manipulated the way the participants were looked at in three conditions in a virtual reality setting (looking away from them: participants were ostracized; looking at their body: participants were objectified; looking at their face: control group) and found that prior objectifying experiences (in this case, being subjected to a gazing experience involving looking the body) resulted in less victim-blaming tendencies and more empathy for rape and sexual assault victims.

According to this research, perceived similarity thus seems to be linked to the degree ofsexual objectification people subject other individuals to and to the level of empathy and responsibility individuals ascribe victims to. Perceived similarity emerges as a possibility to increase victim empathy and decrease victim-blaming. Consequently, investigating perceived similarity in the context of sexual objectification and empathy seems to be an important step inunderstanding the ways of mitigating effects of sexualization and sexual objectification.

Bridging the Gap: Empathy, Sexual Objectification and Similarity

As mentioned in sections above, many studies have cemented the link between sexual objectification and decreased empathy and the consequences of this relationship, such as increased aggressiveness and decreased prosocial behavior. However, most of the studies have researched these topics in hypothetical conditions, with videos or pictures. The current study intents on having a more realistic approach using confederates and having a face-to-face interaction between participant and the confederates.

Furthermore, studies involving sexual objectification and empathy have been focused on social pain or ratings of specific attributions (Cogoni et al., 2018; Loughnan & Pacilli, 2014). Empathy for physical pain seems to be rather scarce across research (Cogoni et al., 2023) and using the paradigm in this study might help uncover further knowledge on this relationship and help uncover the mechanisms of sexual objectification.

Regarding the complex relationship between perceived similarity, sexual objectification, and empathy, virtually no studies exist researching the topics, with the only relevant study directly measuring perceived similarity being by Dvir & Nagar (2022) and Miller et al. (2010). Furthermore, while Vaes et al. (2011) concluded that women distanced themselves from the women they objectified, they did not measure perceived similarity explicitly or directly but calculated a closeness-index, only implicating similarity.

However, even if similarity and closenessare conceptually very closely related (Aron et al., 2004; Sprecher, 2014), justifying the usage of an explicit perceived similarity questionnaire in this study, a study directly measuring perceived similarity seems warranted. As such, if similarity enhances empathy, and sexual objectification decreases empathy by way of denying the other person their humanity, it is plausible to believe that increased similarity should buffer the effects of sexual objectification onempathy, as derived from previous studies (Dvir & Nagar, 2022, Vaes et al., 2011).

Furthermore, research on the sexualization and sexual objectification on men is still uncertain: Some research reported that sexual objectification affects men as well, albeit on smaller scales (Frith & Gleeson, 2004; Johnson et al., 2007; McCabe & Ricciardelli, 2004), while other studies found that only women got sexually objectified (Bernard et al., 2012; Vaes etal., 2011). Given the empirical findings, an investigation into the underlying processes of sexualobjectification and empathy seems warranted to further understand sexual objectification across genders.

Research Question and Hypotheses

This master thesis aims to investigate how sexual objectification affects empathetic responses, and how these responses are influenced by perceived similarity to the empathized person. This leads to the following research questions: How does sexual objectification influence empathetic reactions towards sexualized individuals? The secondary research question aims to explore the effect of similarity on the presupposed relationship between sexual objectification and empathy. As such, based on the research questions and discussed literature above, the following hypotheses emerge:

H1: Sexualized targets are shown less empathy than personalized targets

H1a: Sexualized targets are shown less cognitive empathy than personalized targets

H1b: Sexualized targets are shown less affective empathy than personalized targets

Based on Vaes et al.'s (2011) findings that women distance themselves from objectified women, this study tried to test if these assumptions would hold for objectified men while simultaneously trying to replicate Vaes et al.'s (2011) findings. The following hypotheses wereformulated:

H2: Participants feel less similar to same-sex sexualized targets than personalized targets

H3: Participants feel more similar to opposite-sex sexualized targets than personalized targets

The following hypotheses aim to explore the influence of similarity on empathetic reactions:

H4: Perceived similarity correlates positively with empathetic responses

H5: Perceived similarity moderates the effect of sexualization and empathy for pain

H5a: High similarity weakens the effect of sexual objectification on cognitive empathy

H5b: High similarity weakens the effect of sexual objectification on affective empathy

Methods and Materials

The next section provides descriptions and information on the sample, study design, study procedure, operationalizations and of the utilized statistical methods.

Data Collection and Study Design

This work is part of a larger fMRI study under the supervision of Melanie Michna, MSc., which includes more measurements, both behavioral and functional. The current work will only focus on perceived (dis)similarity, the empathy for pain paradigm and sexual objectification. The data collection took place at the Dental Clinic of the Medical University of Vienna, between mid-October 2022 and end of January 2024.

The design of the present study consists of a 2 x 2 factorial design, with level of sexualization (sexualized or personalized) and gender (male or female) of the confederate as factors. Assignment to one of the four conditions (participant gender (female/male) x confederategender (female/male) was balanced for gender of the participant to ensure random allocation.

Participants

At the time of writing, a total of 77 participants were recruited via flyers, online advertisement (facebook, Studo App, WhatsApp groups) and the Study Participant Platform of the Vienna Cognitive Science Hub, a participant database for interdisciplinary cognitive science research. 8 of the 77 participants had to be excluded because of incomplete questionnaires, faulty scans, and missing data. Thus, the data of a total of 69 participants was used for the analysis in this study. Given that most of the recruitment took place on university-related platforms, the majority of the participants possessed an university background.

Participants were screened for inclusion and exclusion criteria using an online questionnaire on SoSci Survey. The standard exclusion criteria for fMRI-scans applied to thisstudy, namely:

- exposition to head or heart surgery
- any nonremovable metallic objects in the body
- mechanical or surgical implants
- hearing aids or a pacemaker
- claustrophobia
- extreme noise sensitivity or hardness of hearing,
- permanent makeup and certain tattoos (especially tattoos near the face and the neck)
- pregnancy

Additionally, since participants had to look at a screen, people with visual impairments of over 1 diopter were also excluded if there was no possibility of wearing soft contact lenses to correct said visual impairment. Hard contact lenses or glasses were not permitted.

Further exclusion criteria included a psychiatric diagnosis and an ongoing pharmaceutical therapy. Additionally, an occupation in psychology or psychotherapy, or study enrollment in said fields, were also grounds of exclusion so as to prevent familiarity with similar study designs and to prevent questioning the cover story used in the study. Since the task instructions and questionnaires used in the study were written in German, fluid German skills were another important eligibility criterion for the study. Finally, to reduce variability, only people who identified as cis-male or cis-female (i.e., people whose gender identity corresponds with the sex assigned at birth) and who stated having a heterosexual orientation were included.

The study design, the pain administration and the use of the cover story were approved by the Ethics Committee of the University of Vienna. Participants signed consent forms, informing them about the incoming procedures and clarifying possible risks of fMRI scanning. An MRI safety-form was filled out and signed right before the scan to ensure maximum safety of the participants. Study participation and consent was voluntary and could be revoked at any time without the need to give reason.

The original target sample size of the larger fMRI study was 36 participants per group to obtain the targeted power of 0.8. After taking possible dropouts into account, the total target sample size was thus N = 160. The target sample size was unfortunately not reached.

Study Procedure

The entire experiment and data collection took place at the Dental Clinic of the Medical University of Vienna. Each potential participant was assessed for eligibility for the study by filling out a SoSci Survey online questionnaire. Successfully recruited participants were sent a confirmation e-mail with a another online questionnaire irrelevant for this study.

Three days prior to scanning, the participants were sent a reminder with the exact time, date and place of study, the participant and study information, and the consent form by e-mail. The participants were recruited under the impression that the study was interested in the neuronal correlates of pain perception and pain tolerance. As a consequence, the study information form only informed the participants about the aspects related to the pain stimulation and fMRI scanning, and that a total of three people were recruited per session (two of which were models knowing about the cover story and involved in the study).

The models, or confederates, were instructed to pretend to be actual participants. They arrived thirty minutes before the scheduled appointment to prepare themselves, which consisted of wearing specific clothes and shoes, and additionally for the female models, putting on make-up. The confederates differed in their degree of sexualization, with one being in the sexualized condition and one being in the personalized condition (explained in further detail in Measurments section).

At the day of the experiment, the participants and both confederates were picked up at the entrance of the Dental Clinic by an instructor. To keep the integrity of the cover story intact, confederates and instructor were to act as if they were strangers. The confederates were also instructed to limit the social interaction with the participant to a polite minimum in order to avoid the possibility of a sympathy bias. After pick-up, the participant and the confederates were led to the preparation room adjacent to the fMRI scanner room, which had been set up prior to their arrival with two laptops and a dummy pain stimulator, simulating an experimental environment. There, the participants signed the study information and consent and received a scripted introduction (see Appendix) to the study. The participant was told that they were specifically chosen to perform the study tasks in the fMRI scanner due to them meeting the requirements while the confederates would be carrying out the same study on the computers in the preparation room.

After the introduction, the group was led into the hallway of the fMRI scanner room to take pictures for stimuli creation for the upcoming tasks. Both the participant and the confederates were photographed in order to strengthen the credibility of the cover story, even though pre-made photos of the models existed. After the pictures, the first instructor took the confederates and led them back to the preparation room. The models then filled out a questionnaire concerning observations and remarks on the participant and were compensated 25€ for their time.

Meanwhile, the participant stayed with a second instructor and filled out an fMRI safety questionnaire under the supervision of the qualified user (QU). Afterwards, the participant was given detailed instructions for the upcoming three tasks carried out in the scanner. The QU prepared the scanner room and led the participant into the scanner. There, the pain stimulator was placed on the back of the participants' left hand. The shocks were administered through electrodes of the Digitimer DS5 Isolated Bipolar Constant Current Stimulator. In a final step before the actual experiment, the individual pain threshold for each participant for the shocks inthe self-condition was calibrated on a scale from 1 to 8, with 1 being a noticeable shock and 7 being a painful but tolerable shock. 8 represented a

shock that was too strong, indicating the upper limit of the shock strength. The participant then completed all three tasks (Empathy for Pain Task, Pain for Gain Task, Morphing Task) in the scanner. After the tasks, a final structural brain scan was performed.

Afterwards, the participant received water and sweets if wanted and filled out a series of questionnaires on a laptop brought to the fMRI scanner. In a final step, the participant was asked what they thought the study was about and if they noticed anything in particular. The instructor then debriefed the participant, revealing the true motif of the study and of the confederates.

During this time, the participant was encouraged to address any problems, questions, opinions, or suggestions regarding the study. 30€ were awarded as compensation for completing the study. The whole procedure lasted approximately two to three hours.

Measurements

Sexual Objectification

Sexual Objectification was operationalized through the different outfits of the confederates and comprises two levels, personalized and sexualized. The male and female models had different sets of clothes per variant and per gender.

The personalized outfit for the male models consisted of a baseball shirt, loose blue chino trousers, and brown sneakers. The sexualized variant accentuated the arms and the torso, and consisted of a black, tight tank top, blue jeans, and cowboy boots. The personalized outfit for the female models consisted of loose beige trousers, a black shirt, a pastel pinkish, skin-tone cardigan, no make-up and black ballet flats. The sexualized outfit accentuated the legs, arms, and the torso and consisted of a short and tight black dress with straps, heavy make-up, beige, sheer tights, and black high heels. Furthermore, both female and male models wore no jewelry and covered possible tattoos with make up or clothing in order to eliminate further visual differences between the models (Figure 1) All models (3 male models, 4 female models) were balanced across conditions (personalized and sexualized) and wore the respective clothing an approximately equal number of times.

Figure 1

Visual Representation of the Sexualized and Personalized Condition

Note. Examples for the sexualized outfits (first row) and the personalized outfits (second row).Left column displays the male outfits, right column displays the female outfits.

Prior to the study, all conditions were piloted and tested extensively by rating sexiness and intelligence. All conditions induced the desired effects, with the sexualized variants eliciting increased sexiness and decreased intelligence ratings, as well as being perceived as less agentic according to the Mental State Attribution Scale (Gray et al., 2011). The outfits were thus deemed as an effective way to operationalize sexual objectification.

Empathy for Pain Task

The Empathy for Pain Task used in this study is a modified version of the empathy for pain paradigm originally proposed by Singer et al. (2006) (later adapted by Hein et al. (2010)). The intention of the task is to trigger empathetic feelings and cognitions by

observing a person receiving a shock and it is commonly used in experimental studies exploring empathy (Hein et al., 2010; Singer et al., 2006).

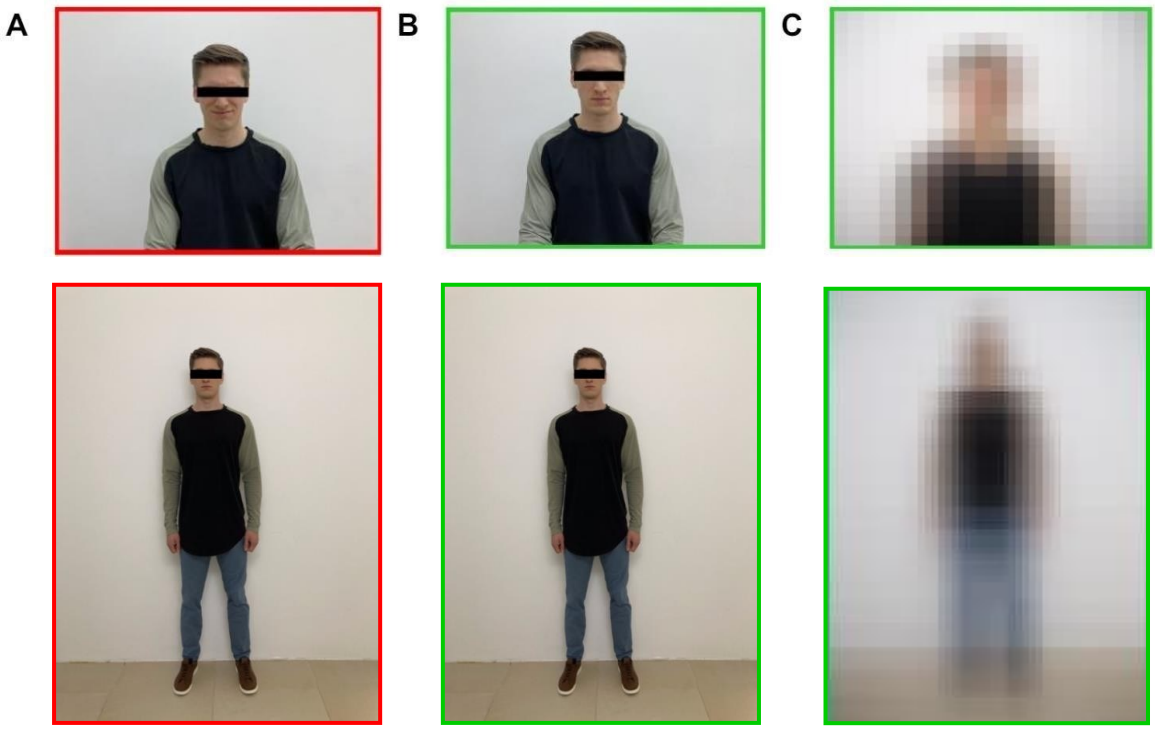
The actual participant, lying in the scanner during the whole task, was under the impression that the confederates were simultaneously carrying out the study with the participant in the preparation room. The exact instructions were shown on a display in the scanner at the beginning of each task and a trial run was done to familiarize the participants with the task. The rating was entered using a button box operated with the right hand.

The task itself consisted of the self-condition, in which the participant received shocks, and the other-condition, in which the participant observed one of the confederates (sexualized or personalized) "receiving" a shock. Each condition had two possible pain levels, which was indicated through a colored picture frame (red for pain, green for no-pain). Thus, a total of 6 trial variations were available, which were administered to the participant in a pseudorandom order.

Each condition started with a fixation cross, followed by a full-body picture showing the person receiving the shock and the intensity of the shock. A black screen then appeared, followed by the delivery of the shock. The shock delivery was accompanied by a framed (greeor red) upper-body picture of the person (self or other) receiving the shock, with a painful or non-painful expression, depending on pain level of the trial. After the shock delivery, another fixation cross appeared. In the other-condition, the full-body and upper-body pictures of the confederates were taken in advance and the same pictures were used across all participants. In the self-condition, heavily pixelated full-body and upper-body pictures were used instead of thepictures taken of the participant before the session (Figure 2).

Figure 2

Stimuli in the Empathy for Pain Task



Note. The first row shows the upper-body pictures, the second row shows the full-body pictures. Column A represents high-pain other-condition (red frame), column B represents low-pain other-condition (green frame), column C represents an example of the pixelated picture in the self-condition. All pictures were shown without the black bar in the task.

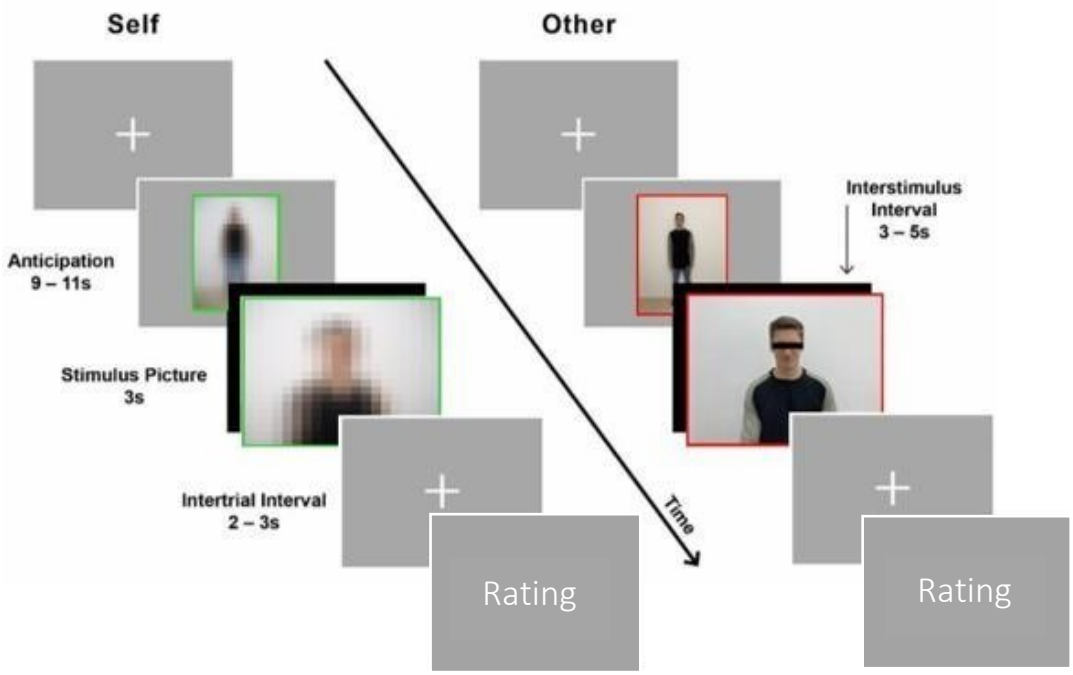
In one-third of the trials (also pseudorandom), participants had to give a shock rating after a short waiting period. In the self-condition, the participant had to rate the discomfort they felt during the shock. In the other-conditions, the participant had to once rate the discomfort they felt while watching the person receive the shock (affective empathy) and once how painful they thought the shock felt for the other person receiving the shock (cognitive empathy). In both conditions, the level of discomfort/painfulness was rated using a Likert scale ranging from 0 = not noticeable (“nicht spürbar”) to 8 = very painful (“sehr schmerzhaft”).

Affective empathy was assessed through the question “How did you feel when the person received the shock?” (“Wie war es für Sie als die Person den Stromschlag erhalten hat?“) while cognitive empathy was measured through the question „How painful was the stimulus for the receiving person?” (“Wie schmerzhaft war dieser Reiz für die Person?“). After the ratings, another fixation cross appeared. In the two-thirds of the trials without the ratings, the fixation cross appeared immediately after the upper body picture. The final

fixation cross indicated the end of the trial and the start of a new one (Figure 3) The complete task compromised 60 trials and aimed to investigate the different empathetic behavioral responses toward sexualized and personalized individuals.

Figure 3

Schematic Representation of the Empathy for Pain Task



Note. Participants either saw a pixelated picture with the frame color indicating the pain-level and that they would receive the shock (self-condition) or a picture of one of the confederates receiving the shock, with the frame color again indicating the pain level. In 1/3 of the trials, participants were asked to rate the received shock/watching the person receive the shock.

Perceived Similarity

The larger project, from which this study is a part of, employs two questionnaires to assess perceived similarity of the participant to the target confederate, both of which are adopted from Tidwell et al. (2013). While one questionnaire evaluated trait-specific perceived similarity, the other assessed general perceived similarity. In this study, only the general perceived similarity questionnaire was utilized, a decision which stemmed from the practicality of the short questionnaire and its effectiveness in addressing the research objectives.

The questionnaire comprised two items, each rated on a 9-Point Likert agreement scale, with 1 indicating “I don’t agree at all” and 9 indicating “I agree wholeheartedly”.

Participants completed the questionnaire for both the sexualized and personalized confederate, with accompanying full-body pictures each. The items assessed perceptions of shared commonalities ("This person and I seem to have a lot in common."; German: "Diese Person und ich scheinen sehr viel gemeinsam zu haben.") and similarities in personalities ("This person and I seem to have similar personalities."; German: "Diese Person und ich scheinen ähnliche Persönlichkeitenzu haben."). The Cronbach's alpha reported by Tidwell et al. (2013) was at $\alpha = .88$. The current study reached a Cronbach's alpha of $\alpha = .93$, indicating a very good internal consistency.

Statistical Analysis

Data cleaning was conducted utilizing the R software (v4.3.2.; R Core Team 2024) and the application RStudio (v2023.12.1.402, Posit Team, 2024), using the tidyverse package (Wickham et al., 2019). All data analysis was performed using the IBM SPSS Statistics Software (v28). A significance level of $\alpha = .05$ was defined in advance for all statistical tests, with results $p < .05$ being considered statistically significant. Differential scores for the empathy variable were calculated by subtracting the mean scores of low pain conditions from those of high pain conditions, separately for both pain and discomfort ratings.

Two mixed repeated measures analyses of variances (ANOVAs) were computed to explore the first hypothesis (sexualized confederates are shown less empathy), one for each empathy component (cognitive and affective empathy).

A repeated measures ANOVA examined both hypothesis two (participants feel less similar to same-sex sexualized targets than personalized targets) and three (participants feel more similar to opposite-sex sexualized targets than personalized targets). A new variable was computed (SexMatch), which classified the participant data into two groups: participants whose sex matched with the sex of the confederates (Same-Sex) and participants whose sex opposed the sex of the confederates (Different-Sex). Mean scores for the similarity ratings were calculated and were used in any subsequent analysis involving similarity ratings.

The fourth hypothesis (empathetic responses correlate with similarity ratings) was statistically explored using Pearson's product-moment correlation coefficient.

A moderation analysis for each empathy component was used to explore the fifth hypothesis – similarity moderates the relationship between sexual objectification and empathy –, which was calculated using the PROCESS macro (v.4.2) by Hayes (2022). This moderation analysis aimed to explore how perceived (di)similarity may moderate the

association between sexual objectification and empathetic reactions, contributing to a deeper understanding of the underlying mechanisms involved. The assumption was based on prior hypotheses which implied a direct relationship between sexual objectification and empathy. Even though the former hypotheses were rejected, the moderation analysis was still carried out. This decision was based on the consensus that a moderation analysis does not require a direct relationship between independent variable (IV) and dependent variable (DV) (Söderlund, 2023).

Based on the findings of Vaes et al. (2005), the study initially wanted to expand hypotheses 3 and 4 by incorporating the participants' sex. However, this idea was rejected due to failure of reaching the initially planned N = 160, resulting in too small sample sizes for all groups if gender were to be included. This study still conducted the analysis as the findings of Vaes et a. (2005) significantly contributed to the development of the study's hypotheses. Therefore, the results of these analyses are only to be considered as preliminary.

Results

The following chapter will first describe the sociodemographic characteristics of the study sample and will then delve into an in-depth analysis of the statistical results.

Sociodemographic Characteristics of Study Sample

The study sample comprised a total of 77 participants, of which 8 had to be excluded. 32 individuals identified as male (46.4%) and 37 individuals identified as female (53.6%). The average age of the participants was 24.03 years (SD = 3.929), with the oldest person being 35 years old and the youngest 19 years old. The female participants (M = 23.70, SD = 3.733) and male participants (M = 24.41, SD = 4.173) were on average the same age. The majority of the study sample were individuals with an association to an academic context, either through work or study enrollment, and predominantly white. Every participant had a heterosexual orientation and identified as cisgender, since these were inclusion criteria.

Descriptive Statistics

The following table (Table 1) presents the mean values, standard deviations, and samplesized of the ratings for pain and discomfort, categorized by condition (sexualized and personalized) and further sorted by confederate gender.

Table 1

Descriptive Statistics for the Pain and Discomfort Ratings in the Empathy for Pain Task

Empathy Component and Condition	Confederate Gender	M	SD	N	Min	Max
Pain Ratings Sexualized	Male	3.552	1.227	32	.25	6.00
	Female	3.755	1.354	37	.50	6.25
	Total	3.661	1.291	69	.25	6.25
Pain Ratings Personalized	Male	3.633	1.387	32	0.50	6.00
	Female	3.860	1.411	37	0.50	6.75
	Total	3.755	1.394	69	0.50	6.75
Discomfort Rating Sexualized	Male	2.771	1.358	32	0.00	5.50
	Female	2.151	1.284	37	-0.25	5.00
	Total	2.438	1.346	69	-0.25	5.50
Discomfort Ratings Personalized	Male	2.656	1.490	32	0.00	6.00
	Female	2.182	1.480	37	-0.25	5.50
	Total	2.402	1.493	69	-0.25	6.00

Note. M, SD, and N indicate the mean, standard deviation, and the sample size, respectively. Minand max describe the minimum and maximum values in the dataset, respectively.

The mean value, standard deviations, and sample sizes of the overall ratings for the perceived similarity ratings, sorted by condition type (sexualized and personalized) and confederate gender are presented in the following table (Table 2). A second table (Table 3) presents the same information but sorted by SexMatch (same sex between participant and confederate, different sex between participant and confederate).

Table 2

Descriptive Statistics for the Perceived Similarity Ratings sorted by Confederate Gender

Similarity Rating and Condition	Confederate Gender	M	SD	N	Min	Max
Similarity Sexualized	Male	3.940	1.795	32	1	8
	Female	4.810	1.543	37	1	8
	Total	4.410	1.709	69	1	8
Similarity Personalized	Male	4.720	1.764	32	1	8
	Female	4.920	1.534	37	2	8
	Total	4.830	1.636	69	1	8

Note. M, SD, and N indicate the mean, standard deviation, and the sample size, respectively. Minand max describe the minimum and maximum values in the dataset, respectively.

Table 3

Descriptive Statistic for Perceived Similarity Ratings sorted by SexMatch

Similarity Rating and Condition	SexMatch	M	SD	N	Min	Max
Similarity Sexualized	Different-Sex	4.220	1.551	36	1	7
	Same-Sex	4.610	1.870	33	1	8
	Total	4.410	1.709	69	1	8
Similarity Personalized	Different-Sex	4.670	1.568	36	2	7
	Same-Sex	5.000	1.714	33	1	8
	Total	4.830	1.636	69	1	8

Note. M, SD, and N indicate the mean, standard deviation, and the sample size, respectively. Minand max describe the minimum and maximum values in the dataset, respectively.

Hypothesis Testing

This section will go over each hypothesis presented before, report the test assumptions,and report the respective results.

H1: Sexualized targets are shown less empathy than personalized targets

A mixed measures ANOVA was computed for each subcomponent of empathy. As mentioned above, a differential score for each empathy component was computed and all further analyses used the differential scores. Pain and discomfort differential scores, as dependent variables (DV), then each underwent a 2 (sexualized and personalized) x 2

(confederate sex: male and female) mixed measures ANOVA, with objectification acting as a within-subject factor and confederate sex as a between-subject factor.

Test assumptions for both ANOVAs were tested. Visual inspection revealed no significant outliers in either the pain ratings (cognitive empathy) or the discomfort ratings (affective empathy). The Shapiro-Wilk-Test (Table 4), utilized because N per group ≤ 50, was not significant ($p > .05$) and thus revealed a normal distribution for both ratings. Sphericity is always assumed when the IVs possess two levels, which both did. Both the results for the Levene's test for equality of error variances (Table 5) and the Box's test for homogeneity of covariances emerged as not significant ($p > .05$), indicating no violations for these assumptions.

Table 4

ANOVA Empathy for Pain: Shapiro-Wilk-Tests of Normality

	Confederate Gender	Statistic	df	Sig.
Pain Rating Sexualized	Male	.976	32	.682
	Female	.957	37	.164
Discomfort Rating Sexualized	Male	.970	32	.488
	Female	.958	37	.169
Pain Rating Personalized	Male	.978	32	.729
	Female	.968	37	.365
Discomfort Rating Personalized	Male	.981	32	.213
	Female	.961	37	.213

Table 5

ANOVA Empathy for Pain: Levene's Test for Equality of Error Variances

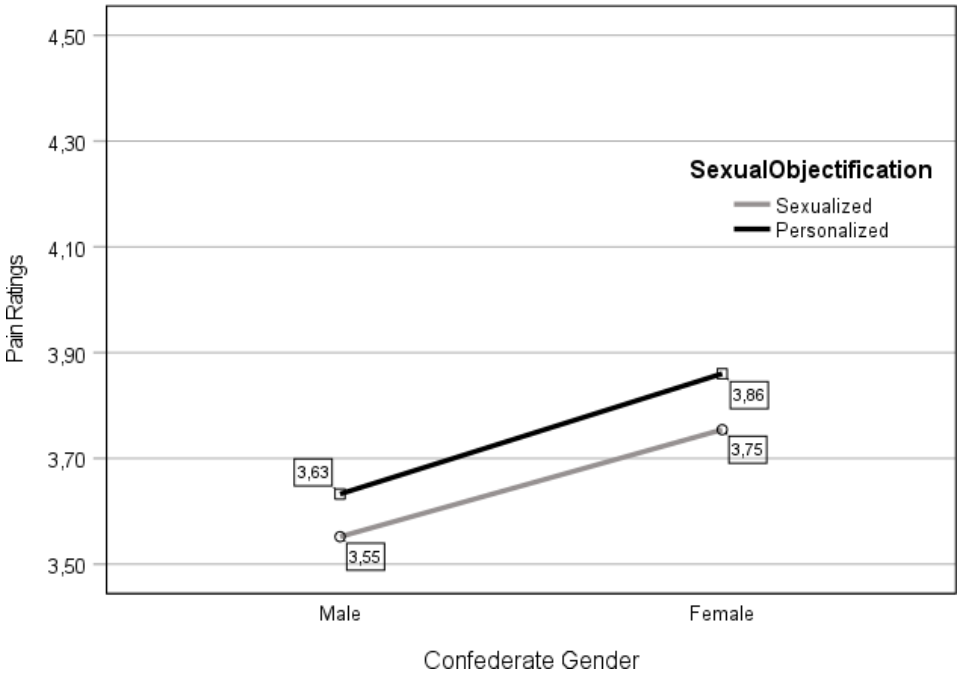
	Levene Statistic	df1	df2	Sig.
Pain Ratings Sexualized	1.169	1	67	.283
Pain Ratings Personalized	1.165	1	67	.272
Discomfort Ratings Sexualized	0.014	1	67	.905
Discomfort Ratings Personalized	0.015	1	67	.769

Note. Results based on mean scores.

H1a: For the pain differential scores, there was no statistically significant interaction between objectification and sex of the confederate, $F(1, 67) = 0.008$, $p = .930$, partial $\eta^2 = .000$. The main effect for objectification was not significant, $F(1, 67) = 0.427$, $p = .515$, partial $\eta^2 = .006$. Similarly, testing for the main effect for sex of the confederate did not yield a significant result either, $F(1, 67) = 0{,}539$, $p = .465$, partial $\eta^2 = .008$ (Figure 4).

Figure 4

Visual Representation of ANOVA for Pain Ratings



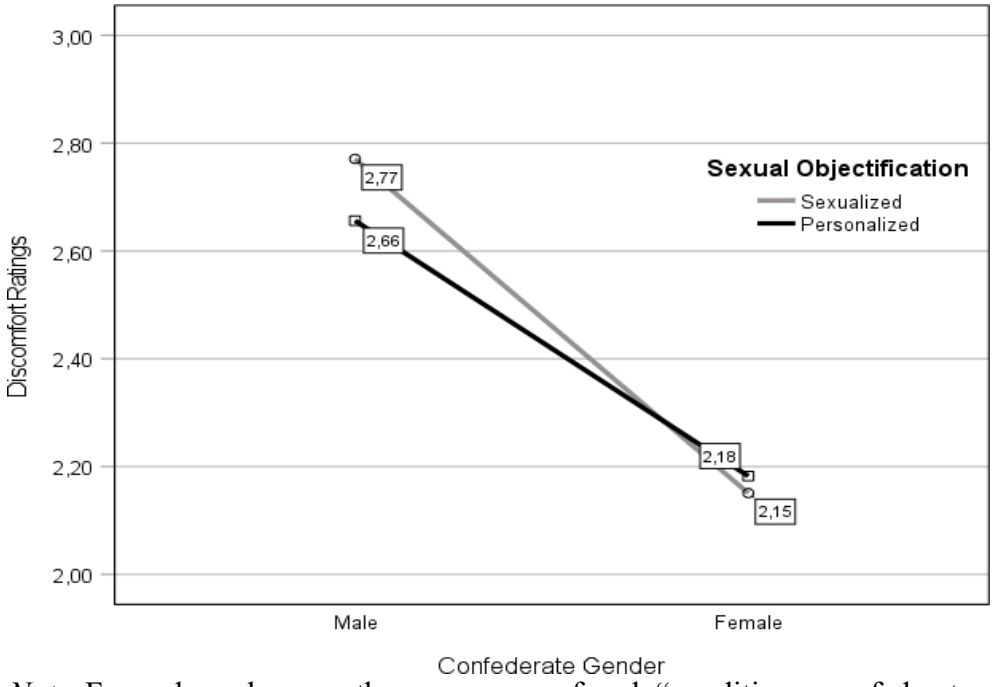
Note. Framed numbers are the mean score for each "condition x confederate gender" combination.

H1b: The analysis of the discomfort patterns followed a similar trend: there was no statistically significant interaction for Objectification x Confederate Sex, $F(1, 67) = 0.306$, $p = .582$, partial $\eta^2 = .005$. Equally, neither the main effect for objectification, $F(1, 67) = 0.099$, $p = .754$, partial $\eta^2 = .001$, nor the main effect for sex of the confederate, $F(1, 67) = 3.070$, $p = .084$, partial $\eta^2 = .044$, yielded any statistically significant results (Figure 5).

Taken together, the analyses were not significant and both H1a and H1b had to be rejected.

Figure 5

Visual Representation of ANOVA for Discomfort Ratings



Note. Framed numbers are the mean score of each "condition x confederate gender" combination.

H2: Participants feel less similar to same-sex sexualized targets than personalized targets

To test hypothesis 3, similarity rating mean scores were calculated for each condition. Similarity mean scores then each underwent a 2 (objectification: sexualized and personalized) x2 (SexMatch: Different-Sex and Same-Sex) mixed measures ANOVA, with objectification acting as a within-subject factor and confederate sex as a between-subject factor.

Assumptions were tested. No significant outliers were found upon visual inspection. Sphericity was assumed since the IV both only had two levels. The assumption of homogeneity of covariances and homogeneity of error variances was not violated (Box's test: $p > .05$; Levene's Test: $p > .05$). The Shapiro-Wilk-Test, however, revealed normality violations for similarity ratings in the sexualized condition for both same-sex and different-sex groups (see Table 6 and 7). Nonetheless, the data was kept unchanged, and the ANOVA was calculated as usual, as ANOVAs are known to be robust against disruptions in normality distribution, espcially when normality violations are mild to moderate (Harwell et al., 1992; Lumley et al.,2002; Salkind, 2010).

Table 6
ANOVA Similarity: Shapiro-Wilk-Tests of Normality

Variable and Condition	Sex-Match	Statistic	df	Sig.
Similarity Sexualized	Different-Sex	.930	36	.071
	Same-Sex	.941	33	.025
Similarity Personalized	Different-Sex	.918	36	.163
	Same-Sex	.953	33	.019

Table 7
ANOVA Similarity: Levene's Test for Equality of Error Variance

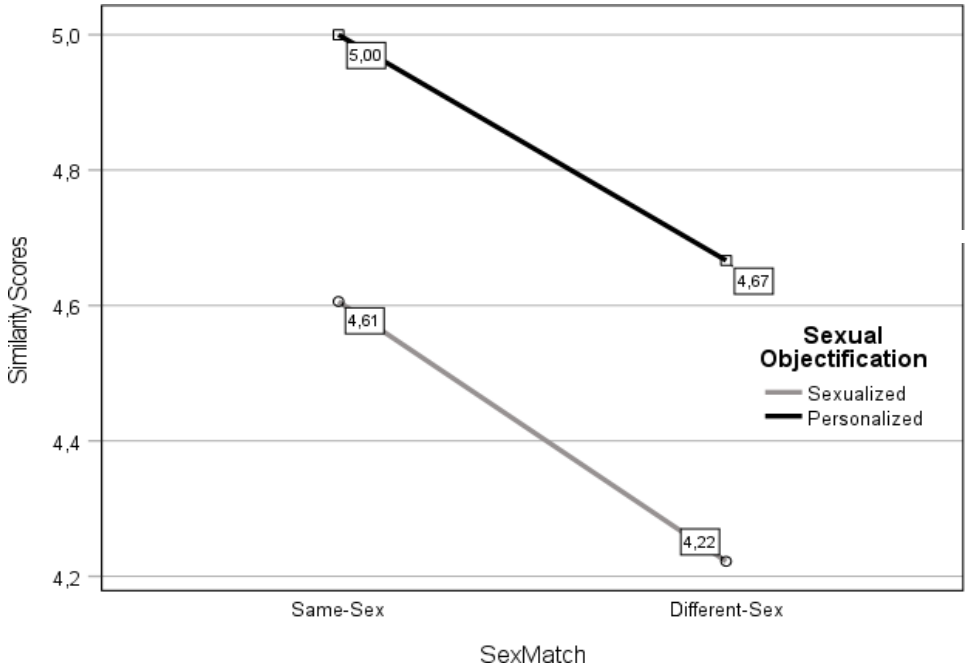
Variable and Condition	Levene Statistic	f1	f2	Sig.
Similarity Sexualized	2.061	1	67	.156
Similarity Personalized	0.053	1	67	.818

Note. Results based on mean scores.

The ANOVA conducted on the similarity scores revealed no statistically significant resultfor the SexMatch x Objectification interaction, $F(1, 67) = 0.013$, $p = .910$, partial $\eta^2 = .000$. In a similar vein, neither the main effect for Objectification $F(1, 67) = 3{,}576$, $p = .063$, partial $\eta^2 = 0.051$, or nor the main effect for SexMatch, $F(1, 67) = 1.129$, $p = .292$, partial $\eta^2 = .017$, reached significance (see Figure 6). Hypothesis 2 was thus rejected.

Figure 6

Visual Representation of ANOVA for Similarity Scores



Note. Framed numbers are the mean score of each "condition x confederate gender" combination.

H3: Participants feel more similar to opposite-sex sexualized targets than personalized targets

As mentioned before, one ANOVA was computed to test both hypotheses. As such, the same results mentioned for hypothesis 2 also apply for this hypothesis (See Figure 5). In similarfashion, the results lead to the rejection of this hypothesis.

H4: Perceived Similarity correlates positively with empathetic responses

The fourth hypothesis was tested using a Pearson's product-moment correlation coefficient. All test assumptions were tested. Linearity was assessed visually with scatterplots for all variables, indicating no linearity violations (see assumption testing in Appendix). Furthermore, no outliers could be found. The normality distribution assumption, however, was not met (see Table 8), which prompted the use of the Spearman-correlation. None of the correlations emerged as significant (see Table 9 for summary of results). As such, the fourth hypothesisthus had to be rejected.

Table 8
Shapiro-Wilk Test of Normality for Variables used in Correlations

Variables	Statistic	dF	Sig.
Similarity Sexualized	.954*	69	.013
Similarity Personalized	.947*	69	.005
Pain Scores Sexualized	.972	69	.121
Pain Scores Personalized	.985	69	.570
Discom. Scores Sexualized	.972	69	.125
Discom. Scores Personalized	.975	69	.176

Note. Discom. stands for Discomfort Scores. * signifies significance for $p \leq .05$

Table 9
Correlations for Study Variables

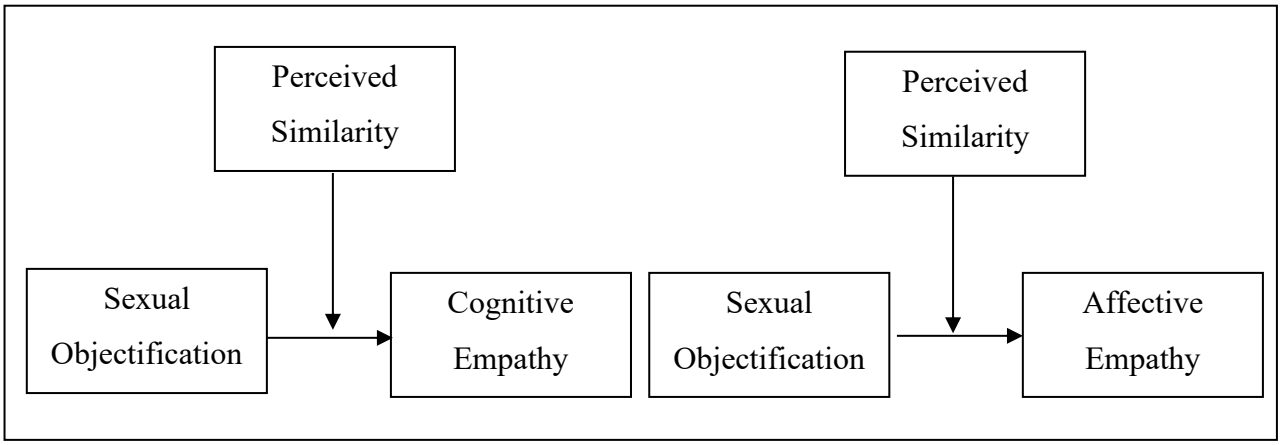
Correlations for Sexualized Condition			
	Similarity Scores	Pain Scores	Discomfort Scores
Similarity Scores	1,000	,164	,162
Sig. (2-tailed)		.177	.185
Correlations for Personalized Condition			
	Similarity Scores	Pain Scores	Discomfort Scores
Similarity Scores	1,000	-,173	-,044
Sig. (2-tailed)		.156	.721

H5: Perceived (Dis)similarity moderates the effect of sexualization and empathy for pain

The fifth hypothesis explored the potential influence of perceived (di)similarity on the relationship between sexual objectification and empathetic reactions. A moderation analysis wasrun via the PROCESS Macro (Hayes, 2022) to determine whether the interaction between sexualobjectification and similarity significantly predicts empathetic reactions (see Figure 7).

Figure 7

Visual Representation of the Theoretic Moderation Model



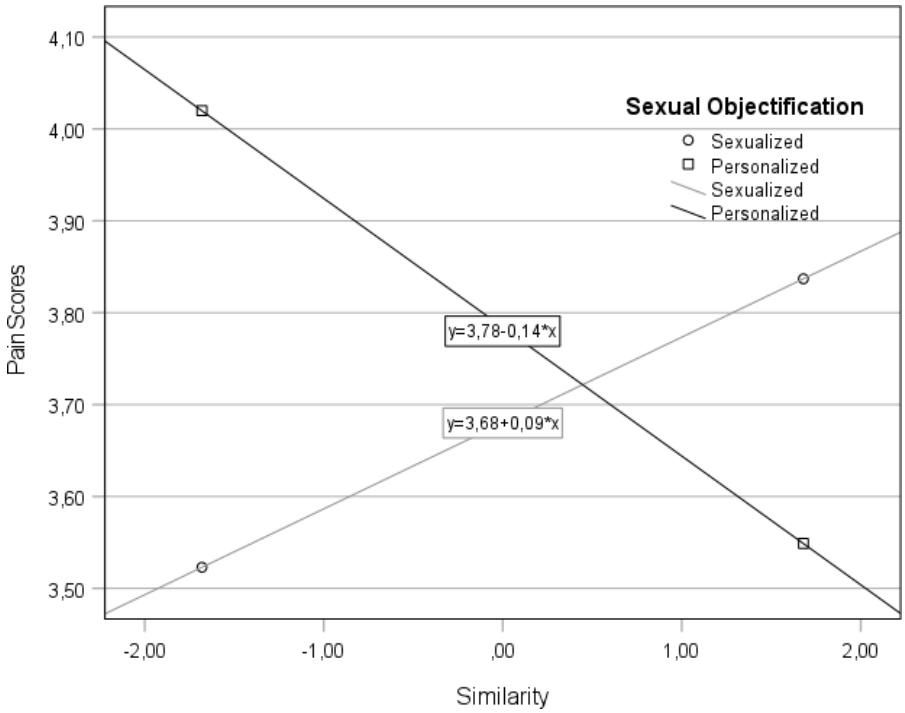
Note. Model A represents hypothesis 5a and Model B represents hypothesis 5b

Test assumptions for the moderation analyses were tested. Linearity was assessed throughvisual inspection of a scatterplot of the relevant variables in the moderation analysis using LOESS smoothing (See Assumption Testing in Appendix). The relationship was deemed approximately linear and compliant with the assumption. The F-statistic was calculated using the heteroscedasticity-consistent inference (HC3) by Davidson and MacKinnon (1985) and by using a bootstrapped sample of 5000, which accounted for the assumption of normal distribution of residuals and homoscedasticity.

H5a: For the pain ratings, the overall model was not significant, $F(3, 134) = 0.831$, $p = .479$, predicting 2.30% of the variance. Furthermore, the analysis did not show that perceived similarity moderated the effect between sexual objectification and cognitive empathy significantly, $\Delta R^2 = 2.21\%$, $F(1, 134) = 2.308$, $p = .131$, 95% CI[-0.533, 0.047]. Following recommendations by Hayes (2018), the interaction term was dropped from the model, resulting in a new simple effects model. This new model revealed neither a significant difference between conditions for sexual objectification, $B = 0.102$, $t = 0.440$ $p = .660$, nor a significant relationship between perceived similarity, $B = -0.018$, $t = -0.264$, $p = .792$, and cognitive empathy (see Figure 8 for visual representation).

Figure 8

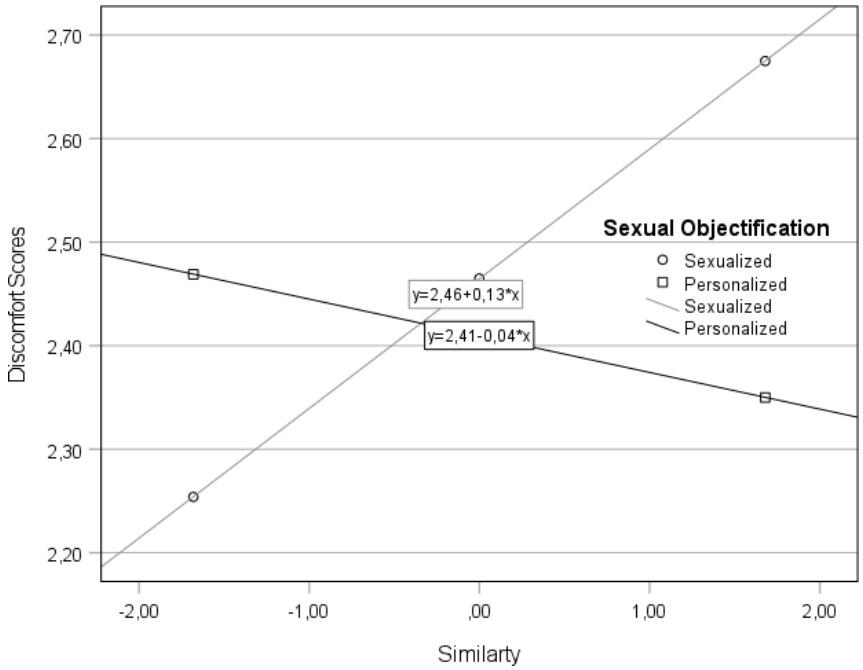
Visual Representation of Moderation Effect of Similarity for Pain Scores



H5b: The same procedure was done for the discomfort ratings, revealing a similar pattern: the overall model emerged as not significant, $F(3, 134) = 0.665$ $p = .575$, with 1.20% variance prediction. No significant moderation effect was found, $\Delta R^2 = 0.9\%$, $F(1, 134) = 1.165$, $p = .282$, 95% CI[-0.437, 0.118]. After dropping the interaction term and calculating a simple effects model, neither significant differences between conditions could be reported for sexual objectification, $B = -0.057$, $t = -0.232$, $p = .817$, nor a significant relationship between perceived similarity, $B = 0.049$, $t = 0.665$, $p = .507$, and affective empathy (see Figure 9 for visual representation)

Figure 9

Visual Representation of Moderation Effect of Similarity for Discomfort Scores



Preliminary Analysis

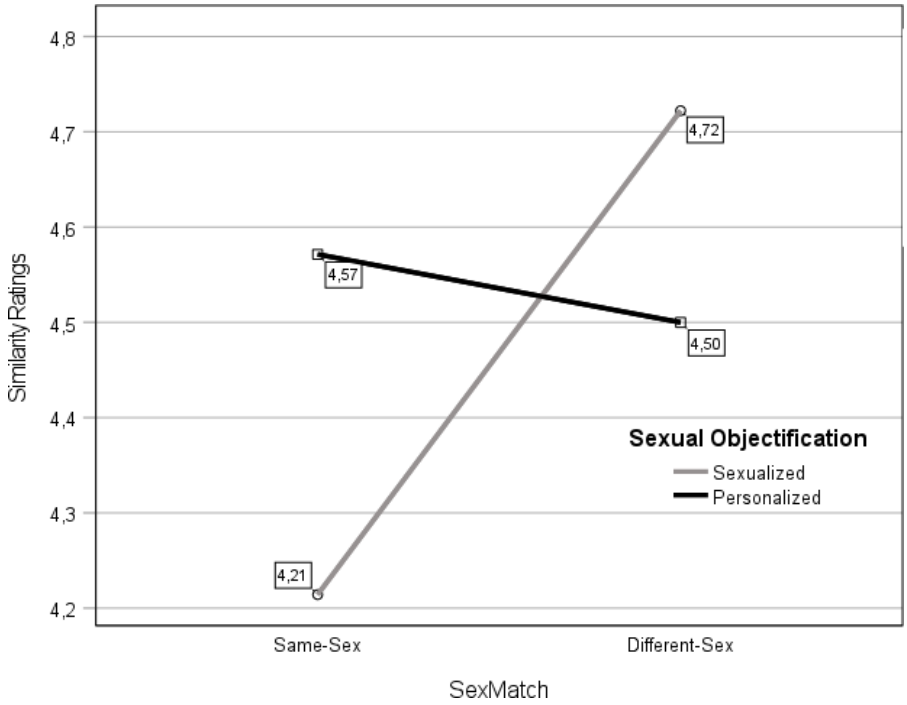
The following analyses are considered preliminary since no adequate sample size was reached to ensure sufficient power. A repeated measures 2 (sexualized or personalized) x 2 (same-sex or different-sex) x 2 (participant sex: male or female) ANOVA was computed for the similarity ratings. The ANOVA design was identical to the one in hypotheses 3 and 4, with the addition of participants sex as a between-subject-factor. The final ANOVA thus looked like as follows: sexual objectification was used as a within-subject-factor, SexMatch as a between-subject-factor, participant sex as a second between-subject-factor and similarity mean scores as the dependent variable. As an extension of hypotheses 3 & 4, all ANOVA assumptions were the same and thus met (see Table 4; 5).

The analysis revealed no statistically significant result for the SexMatch x Objectification interaction, $F(1, 65) = 0.016$, $p = .900$, partial $\eta^2 = .000$, the Objectification x Gender interaction, $F(1,65) = 2.561$, $p = 114$, partial $\eta^2 = .038$, the SexMatch x Gender interaction, $F(1, 65) = 2.395$, $p = .127$; partial $\eta^2 = .036$, and the Objectification x SexMatch x Participant Gender interaction, $F(1,65) = 2.114$, $p = .151$, partial $\eta^2 = .031$.

In a similar vein, neither the main effect for Objectification $F(1, 65) = 3{,}645$, $p = .061$,partial $\eta^2 = .052$, the main effect for SexMatch, $F(1, 65) =$, $p = .292$, partial $\eta^2 = .017$, nor themain effect for Participant Gender, $F(1,65) = .315$, $p = .577$, partial $\eta^2 = .005$ reached significance (see Figures 10 and 11 for a visual representation).

Figure 10

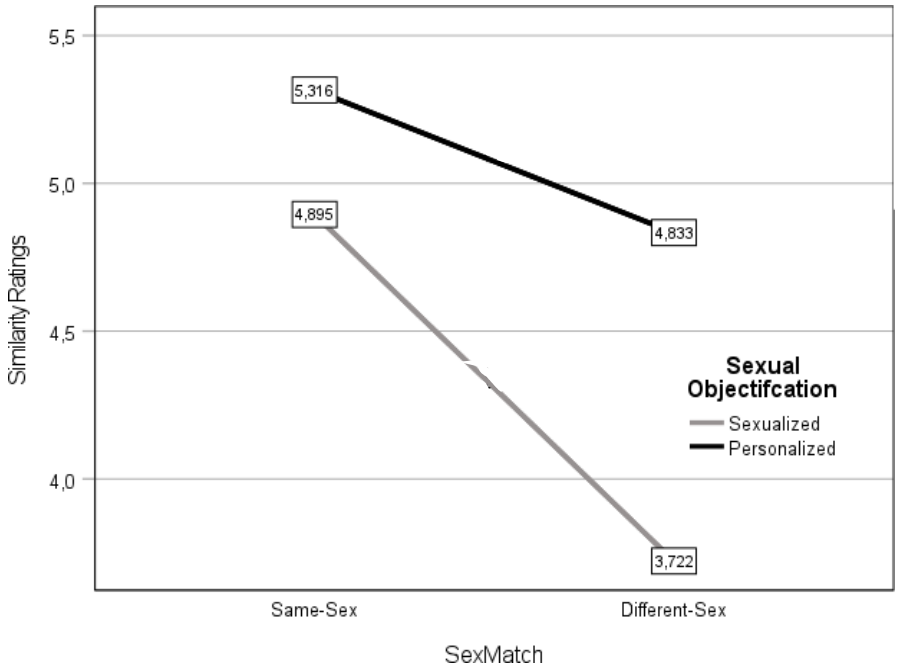
Visual Representation of ANOVA for Similarity: Male Participants



Note. Framed numbers are the mean score of each "condition x confederate gender" combination.

Figure 11

Visual Representation of ANOVA for Similarity: Female Participants



Note. Framed numbers are the mean score of each "condition x confederate gender" combination.

Discussion

As part of a bigger study, the general purpose of this study was to expand the understanding of how sexual objectification affects empathy, specifically on how the sexualization of confederates and the subsequent mental evaluation affects cognitive and affective empathy. Furthermore, the present study tried to investigate the role of (dis)similarity on the relationship between sexual objectification and empathy, moderating the influence of sexual objectification. To achieve this, the study employed the empathy for pain paradigm, during which participants had to indicate the cognitive and affective empathy towards both sexualized and personalized confederates. In a second step, the study analyzed the subsequent behavioral reactions and a similarity self-report filled out after the empathy for pain task. The study included both male and female confederates in order to increase generalizability and to help shed light on the gender discrepancies reported by studies in regard to sexual objectification.

In the following section, the results will be discussed, along with the strengths and limitations of this study, and implications for future research. Overall, the current study proposed five major hypotheses overall, all of which had to be rejected due to non-significance to theproposed relationships.

Interpretation

Main Results

Hypothesis 1, consisting of two sub-hypotheses for each empathy component, proposed that the sexualized, and thus sexually objectified, confederates, would elicit less empathetic reactions on both empathy components than their personalized counterparts. Surprisingly, both *H1a*, investigating cognitive empathy, and *H1b*, investigating affective empathy, revealed no significant results, meaning that the participants showed no significant difference in empathy towards sexualized or non-sexualized individuals. The observable trend of *H1a* (Figure 4) regarding the condition of the confederate (sexualized and non-sexualized) corresponded to the expectations of the study, in that sexualized individuals were shown slightly less empathy than personalized ones. Contrary to expectations however, male confederates were shown less cognitive empathy than female confederates. While contradicting at first, these might occur due to the stereotype of men having to be strong and being to be less sensitive to pain, thereby being expected to ‘toughen it out’. (Ellemers, 2018): since cognitive empathy is the capacity to mentalize and *understand* emotional states of another person, stereotypes might interfere with cognitive empathy by way of creating a stereotype bias, resulting in a reduced capacity to understand a person deviating from these

existing mental expectations. Indeed, scientific literature shows a link between gender stereotypes/sexism and empathy (Garaigordobil, 2014), showing that the relationship between sexual objectification and empathy is complex and modulated by more variables. The trends of *H1b* were consistent with expectations, in that sexualized women were shown less empathy than sexualized men. However, the findings and any subsequent interpretation need to be taken with a grain of salt, since no significance could bereached, and the results could have occurred completely due to chance.

The failure to reach significance could be explained by two factors: Firstly, the size and generalizability of the sample are lacking, leading to a weak power of the analyses and difficulties in comparing the results to other studies, a point discussed in more detail in the limitations section. Secondly, the intended manipulation might have failed. Although the outfits were tested and piloted in previous studies, the intended effect of the sexualized outfits, namely, to sexually objectify the confederate in question, might have not taken place, leading to no significant empathy differences between sexualized and non-sexualized confederates. Since no manipulation check was carried out, there is no possibility to rule this explanation out.

To summarize, the results of hypothesis 1 suggest no difference in reported empathy towards sexualized or personalized individuals.

Hypothesis 2 and hypothesis 3 were simultaneously tested with a mixed measures ANOVA, dividing the participants into same-sex and different-sex groups. Hypothesis 2 posited that participants feel less similar to same-sex sexualized targets than personalized targets while hypothesis 3 stated that participants feel more similar to opposite-sex sexualized targets than personalized targets. These hypotheses were partly based on Vaes et al.'s (2011) findings that women distanced themselves from the women they objectified while men felt closer, or more similar, to the women they objectified. Although Vaes et al. (2011) did not find any effect on sexualized men, multiple studies have shown that objectification seems to affect men (scales (Frith & Gleeson, 2004; Johnson et al., 2007; McCabe & Ricciardelli, 2004). The current study tried to investigate if Vaes et al.'s (2011), considering the research of men getting objectified, were generalizable across genders.

The results of the ANOVA failed to reach significance, leading to the rejection of both hypothesis 2 and 3. However, trends observable in the line graph (Figure 6) show that, if significance was reached, hypothesis 2 would have been confirmed, since participants indicated a higher similarity to same-sex *personalized* confederates than same-sex *sexualized*

confederates. Contrary to hypothesis 3, however, the trends did not show higher similarity ratings for different-sex *sexualized* confederates, but instead felt closer to different-sex *personalized* confederates.

This finding in the different-sex group could be due to conflicting participant gender effects (as in different reactions from male and female participants masking the true interaction, which were, due to the insufficient sample size, not accounted for in hypothesis 3. This point will be further elaborated in the preliminary analysis section below. Again, since none of the results emerged significant, the results could be due to chance and should be treated cautiously as such.

Similarly to hypothesis 1, the lack of significance in hypotheses 2 and 3 could be attributed to the sample constraints outlined earlier and the failure to achieve the intended manipulation, meaning that conceptually, the participants saw no difference between sexualized and non-sexualized confederates. Another explanation could be the rather short perceived similarity questionnaire, which, even though seemingly validated by Tidwell et al. (2013), might have been too short or too vague to completely capture general similarity. Further research might need to venture into the investigation of the reliability of the General Perceived Similarity questionnaires, or test out more precise questionnaires, such as the Specific Perceived Similarity questionnaire by Tidwell et al. (2013).

In summary, the results of hypotheses 2 and 3 indicate that participants reported no differences in perceived similarity to either personalized or sexualized confederate, regardless of whether the confederate matched their sex. This suggests that perceived similarity is not influenced by sexual objectification or vice versa.

Hypothesis 4 examined the correlational relationship between perceived similarity and empathetic responses. Hypothesis 4 posited that perceived similarity would correlate positively with both empathy components and regardless of condition (sexualized and non-sexualized).

Similarly to the other hypotheses, and again surprisingly, the correlation analyses revealed no significant results, meaning that hypothesis 4 had to be rejected as well. Nevertheless, the trends of the analysis seemed to partly align with the study expectations: Although small (*H5a* cognitive empathy: $r = .164$; *H5b* affective empathy $r = .162$), the correlations in the sexualized condition revealed a positive relationship between perceived similarity and empathetic reactions towards *sexualized* confederates. Contrary to expectations, however, perceived similarity and empathetic reactions towards *personalized*

confederates seemed to correlate negatively, at least in the case of cognitive empathy (r = .172). Even if contrary to the current study's expectations, it seems to align to the study of Israelashvili et al. (2020), who reported that perceived similarity between participant and target actually diminished reported empathy. These findings indicate that the relationship between perceived similarity and empathy is more complex than thought, linking sexual objectification, and other potential variables such as sexism reported above, to their link. One potential variable would be the exact factors in which people feel similar to another person to, such as attitudes and personality.

Further research would need to include a more specific perceived similarity questionnaire. Moreover, a bigger and more representative sample sizes will be needed to accurately computefurther analyses.

Reviewing the results, no significant correlation could be found, signifying that no relationship between empathy and similarity seems to be present.

Lastly, hypothesis 5 tried to examine the moderating role on the relationship between sexual objectification and empathy. It was hypothesized that similarity would have a buffering effect on the relationship between sexual objectification and empathy, thus weakening the relationship between the two variables. Two moderation analyses were computed, one for each component. For both cognitive and affective empathy, the results did not reach significance again, resulting in the rejection of both sub-hypotheses *H5a* (cognitive empathy) and *H5b* (affective empathy). Similarly to the other hypotheses, the trends seemed to at least partly align with the expectations of the study. For both cognitive and affective empathy, perceived similarity did seem to have a lightly buffering effect (Figures 8 and 9) in the *sexualized* condition. In the *personalized* condition, however, the results suggest that perceived similarity actually lowered empathetic reactions. Similarly to hypothesis 4, the findings in the personalized condition corroborate the study by Israelashvili et al. (2020) while the findings in the sexualized condition seem to be in line with the assumption that perceived similarity enhances empathy (see section '*Similarity and Empathy'*). These findings, although not significant, again highlight the complexity of the interrelationships between similarity, empathy and sexual objectification, indicating that further research is necessary to disentangle the opposing conceptualizations and ideas revolving around those subjects. Further research would need to include more specific similarity questionnaire to explain the potential moderating differences between the sexualized and non-sexualized conditions and should aim for a larger and more balanced sample.

Overall, the results of hypothesis 5 suggest that similarity has no significant moderatingrole in the relationship between sexual objectification and empathy.

Preliminary Analysis

The preliminary analysis consisted of an extension of the mixed measures ANOVA of hypotheses 3 and 4, including the gender of the participant into the calculation. Similarly to the hypotheses above, the preliminary analysis was not significant either. This was not surprising since the separate group sizes were around 15 participants, which is too small for a reliable mixed measures ANOVA. However, the trends were actually promising and potentially replicated the findings of Vaes et al. (2011) for the objectified women (Figure 10 and 11): Male participants reported feeling more similar to sexualized confederates than personalized confederates. In fact, male participants indicated the highest similarity scores for the sexualized female confederates. Female participants instead felt the most similar to personalized female confederates and seemed to distance themselves more from personalized female confederates. However, the female confederates in the sexualized condition were still rated higher than the personalized male confederate, followed by the sexualized male confederate being rated as least similar. This indicates gender-based differences in the similarity perception. Indeed, some studies have found that women tend to favor other women in terms of liking and similarity, while his effect seems to be smaller for men. Furthermore, when drawing from Fredrickson & Roberts (1997), hegemonic masculinity is omnipresent and a constant potential threat to women in everyday life. This threat might be a way to explain cautiousness against hegemonial masculinity (Morgenroth & Stuart, 2020), since both the personalized and sexualized confederates still conformed to the masculine standards, as they were tall and muscular with rather short hair. Future studies with different representations of masculinity could further enlighten this topic.

Overall, these preliminary findings suggest different pathways of objectification in regardto the gender of the objectifying person. However, since the group sizes in the analysis were relatively small, interpretation of the effects should occur with caution.

Strengths and Limitations

The findings of this study should be considered within the context of several important limitations. Firstly, the sample composition presents a notable constraint. The participants were uniquely conducted in Austria, were exclusively heterosexual and cis-gendered, and were part ofa relatively narrow age range (18 to 35). Furthermore, since the recruitment took place channels associated to university-contexts, almost all of the participants had some kind of relationship to an university, with the majority of the sample

being students. This homogeneity in participant characteristics poses challenges to the representativeness of the findings, as it may not adequately represent the diversity of the population. Future research efforts should prioritize recruiting participants from different age ranges, different socioeconomic and educational backgrounds, and different cultural and racial backgrounds in order to enhance the generalizability of the findings, since most of these sociodemographic variables have been shown to influence empathy, similarity and sexual objectification (e.g. Anderson et al., 2018; Gutiérrez-Cobo et al., 2023; Ma & Loughnan, 2019). Furthermore, gender-nonconforming individuals should also be included into future research, since transgender and non-binary also suffer from the repercussions of sexual objectification (Anzani et al., 2021; Pradell et al., 2024).

Another constraint regarding the sample is the size: The planned target size of 160 participants was not reached due to difficulties in recruiting, sickness of instructors or confederates, and technical difficulties regarding the scanner, pain stimulator, and the eye tracker. The small sample size could strongly account for the failure to reach significance, as, for example, the gender of the participant had to be dropped out of hypotheses 2 and 3, resulting in either too small group sizes or a too simplistic model. Future research should try to reach a large enough sample size to guarantee enough statistical power.

Furthermore, the preliminary study showed that gender effects seem to greatly affect therelationship between empathy, sexual objectification and similarity. However, due to the insufficient sample size, gender effects were excluded from the main hypotheses. Future studies should delve deeper into the gender effects of both objectification target and the objectifying participant in order to shed light on the different mechanism and frameworks for different genders.

Additionally, the study's complex experimental design involved multiple steps and components, such as participant interactions with confederates and neuroimaging tasks, may have led to methodological inconsistencies. Despite best efforts to standardize procedures, the presence of multiple experimenters, confederates, and testing conditions may have introduced unintended sources of error. Future studies should aim for greater standardization in experimental protocols to ensure the reliability and validity of the findings.

One of the other confounding points might have been social desirability. Participants may have seen that the experimenters were able to watch their responses on a screenoutside the scanner, they may have acted more empathic. Secondly, it may have been the case that participants did not believe the cover story, as sexualized participants wore the same clothing in winter, leading to questioning, which might have influenced their answers.

Lastly, since no manipulation check was performed, it cannot be ruled that participants simply did not objectify the sexualized confederates. Future studies should include a manipulation check and different approaches for the cover story and outfits during different seasons.

However, the study also possesses several strengths. Firstly, it is one of the first studies to employ real-life confederates, thus making an interaction between confederate and participant possible and allowing for more natural and realistic approximations of real-life contexts compared to previous studies who predominantly used images or videos. Furthermore, few studies have included sexualized male targets, making this study part of the attempt to uncover the questions surrounding the sexual objectification of men. Lastly, up to date and as far as known to the author, the current study is the only study to examine the interrelationship of perceived similarity and empathy in a context of sexual objectification. While none of the results were significant, the study's exploratory nature still allows for the generation of hypotheses and insights that can guide future research.

Future research should aim to diversify participant demographics to enhance the generalizability of findings. This includes recruiting individuals from various cultural, racial, socioeconomic, and gender backgrounds, including transgender and non-binary individuals. Furthermore, the present study shows that the interrelationships between empathy, similarity andsexual objectification are quite complex. Future research should thus try to incorporate and account for further variables such as sexism, personality traits and gender effects.

Moreover, advanced techniques like neuroimaging could offer deeper insights into the neural mechanisms underlying sexual objectification and empathy. This could illuminate the complex interplay between cognitive, affective, and physiological factors.

In summary, future research and practical efforts should continue to explore the relationship between sexual objectification, perceived similarity, and empathy to promote empathy, respect, and equality for all individuals.

Conclusion

The aim of this thesis was to investigate how sexual objectification influences empatheticreations, and how that relationship may be moderated by perceived similarity. A focus was laid on the gender of the confederate and the matching genders between confederate and participant in order to examine if differences in empathetic reactions may be due to gender effects.

However, the study found no significant results, meaning that the sexualization of the confederate had no effect on empathetic reactions. Furthermore, no differences in perceived similarity could be found and no moderating effect of similarity on empathy could be reported. shown towards both personalized and sexualized individuals on a neural level. These results contradict the expectations that participants will show less empathic neural responses towards sexualized individuals, and that individuals would feel closer to personalized same-sex individuals and sexualized different-sex individuals. These findings indicate the need for future research using a larger and more heterogeneous sample, including wider age range, diverse educational background and include non-student participants. While not significant, the trends ofthe study open potential research topics and inspires further research on the topic of sexual objectification, such as gender effects between target and perceiver and the inclusion of similarity as a protective factor.

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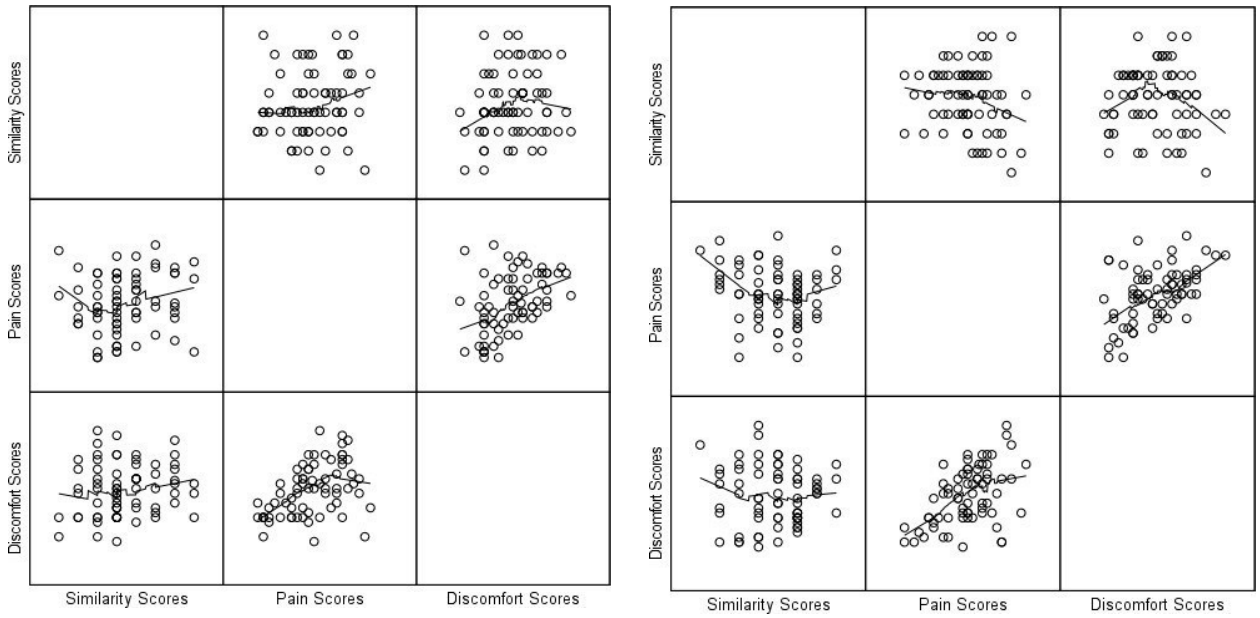
Appendix

Supplementary Material: Assumption Testing

Hypothesis 4: Correlation Analysis

Figure 12

Scatterplot for Linearity Testing: Sexualized (left) and Personalized (right) Condition

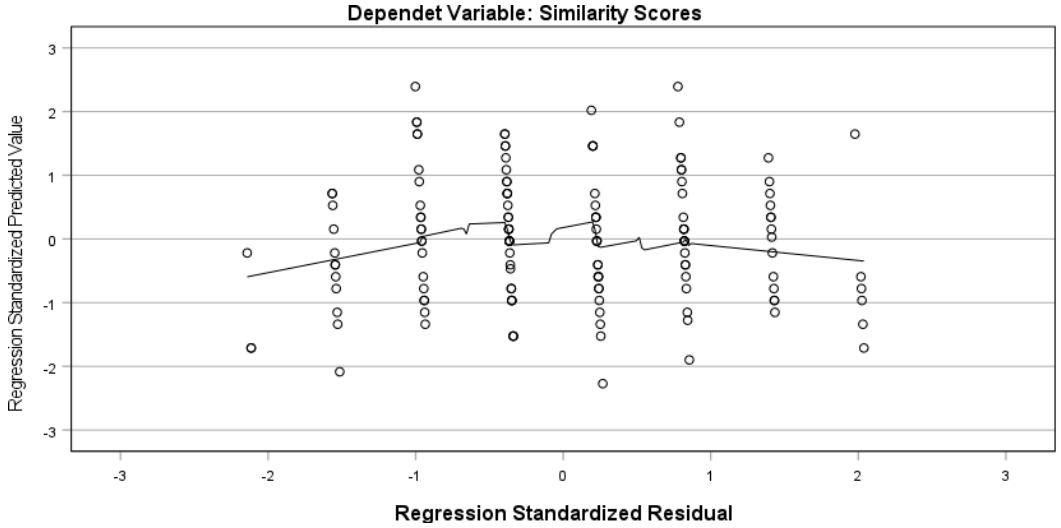


Note. LOESS-smoothing applied to fit line.

Hypothesis 5: Moderation Analysis

Figure 13

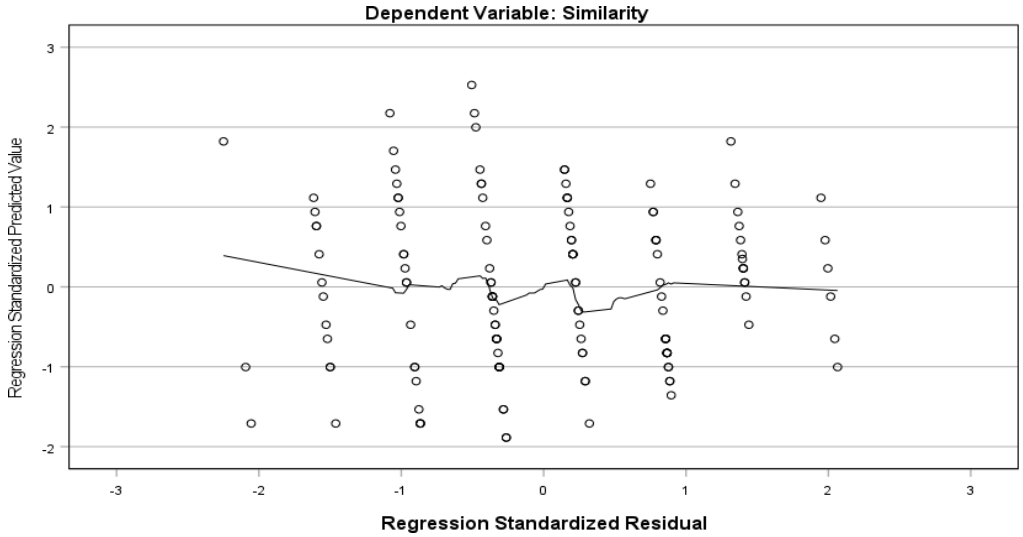
Scatterplot for Linearity Testing: Pain Scores



Note. LOESS-smoothing applied to fit line.

Figure 14

Scatterplot for Linearity Testing: Discomfort Scores



Note. LOESS-smoothing applied to fit line.

List of Figures

List of Tables

Abstract (English)

Introduction. Gender-based violence is a current societal issue leading to serious physical and psychological risks for the victims, with existing research finding that reduced empathy is thought to lead to increased violence and aggressiveness towards sexually objectified (SO) individuals. Another factor influencing empathy has been shown to be perceived similarity, with similarity also being linked to SO. Men felt closer to women they SO, while women felt the opposite. This study aimed to explore the links between SO, empathy, similarity. *Hypotheses.* SO leads to less empathetic reactions, same-sex participants feel more similar to personalized targets while different-sex participants feel more similar to sexualized targets. Similarity correlates with empathetic reactions and weakens the relationship between SO and empathy. *Method*. N = 69 (37 women). Disguised as a pain study, the current study employed a 2(personalized/sexualized) x 2(target: male/female) design, using an empathy for pain paradigm with electric shocks and a General-Perceived-Similarity-Questionnaire. *Results.* Contrary to expectations, all hypotheses were rejected due to non-significant results. There was no difference in empathetic reactions orsimilarity ratings. Similarity did not act as a moderator. Trends, however, partly went into the expected direction, albeit non-significant. *Interpretation.* Contrary to current research, the current study implies that sexualization and SO do not affect empathy and similarity ratings. However, the target sample size could not be reached, and the sample emerged as very homogenous, which may explain the failure to reach significance. Future studies are needed toexplore the presented links more deeply.

Keywords: sexual objectification, empathy for pain, perceived similarity, sexualization

Abstract (German)

Einleitung. Geschlechtsspezifische Gewalt ist ein gesellschaftliches Problem, das ernsthafte physische und psychische Folgen für Opfer hat. Studien zeigen, dass verminderte Empathie zu erhöhter Gewalt und Aggressivität gegenüber sexuell objektifizierten (SO) Personen führt. Ein weiterer Faktor, der die Empathie beeinflusst, ist die wahrgenommene Ähnlichkeit, wobei Ähnlichkeit auch mit SO in Verbindung steht. Männer fühlten sich Frauen, die SO sind, näher, während Frauen das Gegenteil empfanden. Ziel dieser Studie war es, die Zusammenhänge zwischen SO, Empathie und Ähnlichkeit zu untersuchen. *Hypothesen.* SO führtzu weniger empathischen Reaktionen, gleichgeschlechtliche Teilnehmer*innen fühlen sich personalisierten Kompliz*innen ähnlicher, während andersgeschlechtliche Teilnehmer*innen sich sexualisierten Kompliz*innen ähnlicher fühlen. Ähnlichkeit korreliert mit empathischen Reaktionen und schwächt den Zusammenhang zwischen SO und Empathie. *Methode*. N = 69 (37 Frauen). Die als Schmerzstudie getarnte Studie verwendete ein 2(personalisiertes/sexualisiertes) x 2(Zielgeschlecht: männlich/weiblich) Design, wobei ein Empathie-Paradigma für Schmerzen mit Elektroschocks und ein Fragebogen zur allgemeinen wahrgenommenen Ähnlichkeit eingesetzt wurden. *Ergebnisse.* Entgegen Erwartungen wurden alle Hypothesen verworfen, da die Ergebnisse nicht signifikant waren. Es gab keinen Unterschied bei den empathischen Reaktionen oder den Ähnlichkeitsbewertungen und Ähnlichkeit besaß keinen Moderator-Effekt. Die Trends, obwohl nicht signifikant, gingen jedoch teilweise in die erwartete Richtung. *Interpretation*. Im Gegensatz zur aktuellen Forschung impliziert die aktuelle Studie, dass Sexualisierung und SO keinen Einfluss auf empathische Reaktionen und Ähnlichkeit haben. Allerdings konnte die angestrebte Stichprobengröße nicht erreicht werden und die Stichprobe entpuppte sich als sehr homogen, was als Erklärung für die Nicht-Signifikanz hergenommen werden kann. Weitere Studien sind erforderlich, um die dargestellten Zusammenhänge tiefergehend zu untersuchen.

Schlüsselwörter: sexuelle Objektifierzung, Empathie für Schmerz, wahrgenommene Ähnlichkeit,Sexualisierung

Introduction Script

“Willkommen zur Studie `neuronale Korrelate der Schmerzwahrnehmung`. Wir möchten bei der Studie die Gehirnaktivität bei eigener Schmerzwahrnehmung und Schmerzwahrnehmung anderer untersuchen. Dafür haben wir 3 Personen rekrutiert, eine davon ist im fMRT-Scanner - das bist du – und ihr werdet an der Studie an diesen beiden PCs teilnehmen.

Bitte lest sorgfältig die Einverständniserklärung durch und unterschreibt, wenn ihr fertig seid. Ich würde euch jetzt bitten euer Handy auszuschalten.

Die Studie besteht aus 4 Teilen- 3 davon sind für dich im Scanner, den letzten Teil machst du auch am PC. Es gibt immer noch einmal Instruktionen vor jeder Aufgabe. Wir erklären alles ganz genau mündlich.

Da es sich um eine Schmerzstudie handelt bekommt ihr eine Elektrode an eurem Handrücken die einen kleinen Schmerzreiz abgibt. Wir kalibrieren vor dem Experiment für jede/n von euch eure individuelle Schmerzschwelle. Wir beginnen dazu mit ganz leichten Stromschlägen, die kaum spürbar sein werden für euch und gehen dann auf einer Skala von 0 bis 8 ganz langsam hoch auf eurer individuellen Schmerzgrenze. Ihr werdet im Experiment niemals einen höheren Schmerzreiz bekommen als ihr bei dieser Kalibrierung am Anfang angebt.

Die ersten beiden Teile sind Aufgaben, die ihr alle gemeinsam macht.
Im ersten Teil bekommt ihr alle 3 abwechselnd Stromschläge (in zufälliger Reihenfolge) und - auch zufällig- immer eine Person schätzt ein, wie schmerzhaft der Stromschlag entweder für sich selbst oder für die andere Person war.

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In der zweiten Aufgabe bekommt ihr - auch wieder zufällig- die Stromschläge und ihr müsst dazu Entscheidungen treffen.

In der dritten Aufgabe- die macht dann jede/r für sich- seht ihr Videos von Gesichtern, die sich in andere Gesichter umwandeln und ihr müsst einen Knopf drücken sobald ihr mehr vom anderen Gesicht seht.

Der letzte Teil sind Fragebögen, die ihr ausfüllen müsst. Das machst du dann auch außerhalb des Scanners, nachdem du noch einen kurzen Scan von deinem Gehirn gemacht hast. Nach dem Ausfüllen der Fragebögen gebt ihr dann noch eure Kontodaten an und dann könnt ihr nach Hausegehen. Ihr werdet euch nicht mehr sehen nach der Studie da du etwas länger brauchen wirst im Scanner (wir machen dann noch das Bild von deinem Gehirn).

Generell können die ganzen Vorbereitungen im Scanner immer etwas länger dauern, also müsst ihr beide manchmal vielleicht etwas länger warten bei den Aufgaben, die ihr gemeinsam macht.

Habt ihr Fragen?
Wie ihr schon in der Einverständniserklärung gelesen habt, machen wir vorher noch ein paar Fotos von euch, damit ihr bei den Aufgaben immer wisst wer an der Reihe ist. Die Fotos werden gleich nach der Studie wieder gelöscht- die seht nur ihr jetzt, sonst keiner."