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## **Super-heróis: Os Agressores Pró-sociais. Uma Revisão Sistemática da Literatura**

*Superheroes: The Prosocial Aggressors. A Systematic Literature Review*

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### Resumo

Os super-heróis, personagens populares na mídia contemporânea, trazem elementos conflitantes em suas narrativas: seus objetivos são pró-sociais (ajudar os que precisam), mas seus meios são violentos. A questão então surge: como essa dualidade impacta os consumidores? O presente estudo objetivou realizar uma revisão sistemática da literatura investigando o impacto de mídia de super-heróis na agressão e comportamento pró-social, e variáveis relacionadas. Foram considerados estudos dos últimos dez anos, publicados em inglês e português na Scopus, Psycinfo e Scielo. Foram utilizados os seguintes descritores: Super-herói ou Herói, e Agressão, Antissocial, Violência, Pró-social ou Ajuda. A amostra final passou por uma síntese qualitativa. Os resultados mostraram que todos os estudos da amostra apontaram para impactos positivos da mídia de super-heróis no comportamento pró-social. Os dados sobre agressão, por outro lado, foram inconclusivos. Por fim, as variáveis gênero e nível de identificação com o personagem se destacam na compreensão dos efeitos da mídia de super-heróis. Destacamos a necessidade de uma investigação mais profunda sobre a mídia pró-social violenta e suas consequências.

**Palavras-chave:** Super-heróis, Agressão, Comportamento de Ajuda, Meios de Comunicação de Massa.

### Abstract

Superheroes, popular characters in contemporary media, have conflicting narrative elements: their goals are prosocial (helping those in need), but their means are violent. But how does this duality impact consumers? The present study aimed to carry out a systematic literature review investigating superhero media's impacts on aggression and prosocial behavior, and related variables. Studies from the last ten years, published in English and Portuguese in Scopus, Psycinfo and Scielo, were considered. We used the following descriptors: Superhero or Hero, and Aggression, Antisocial, Violence, Prosocial, or Helping. The final sample went through a qualitative synthesis. The results showed that all studies in the sample pointed to positive impacts of superhero media on prosocial behavior. Data on aggression, on the other hand, were inconclusive. Finally, the variables gender and level of character identification contributed in understanding the effects of superhero media. We highlight the need for a deeper investigation on prosocial violent media and its outcomes.

**Keywords:** Superheroes, Aggression, Helping Behavior, Mass Media.

### Resumen

Los superhéroes, personajes recurrentes en los medios contemporáneos, aportan elementos conflictivos a sus narrativas: sus objetivos son prosociales (ayudar a los necesitados), pero sus medios son violentos. Surge entonces la pregunta, ¿cómo impacta esta dualidad en los consumidores? El presente estudio realizó una revisión sistemática investigando el impacto de medios de superhéroes en agresión y comportamiento prosocial, y variables relacionadas. Se consideraron estudios de los últimos diez años, publicados en inglés y portugués, en Scopus, Psycinfo y Scielo. Se utilizaron los siguientes descriptores: Superhéroe o Héroe, y Agresión, Antisocial, Violencia, Prosocial o Ayuda. La muestra final pasó por una síntesis cualitativa. Los resultados mostraron que todos los estudios en la muestra señalaron impactos positivos de los medios de superhéroes en el comportamiento prosocial. Los datos sobre agresión, por otro lado, no fueron concluyentes. Finalmente, las variables género y nivel de identificación del personaje destacan en la comprensión de los efectos de los superhéroes en los medios. Destacamos la necesidad de una investigación más profunda sobre los medios violentos prosociales y sus resultados.

**Palabras-clave:** Superhéroes, Agresión, Conducta de Ayuda, Medios de Comunicación de Masas.

## Introdução

On our daily life, media is a resource not only for entertainment, but for contact with the ideals of our societal context (Spinner et al., 2022). In fiction, superheroes are an example of this statement. They represent the “ideal” human being, concerned with defending those in need (Rosenberg, 2013). Although superheroes are not exactly new characters in most media formats, their popularity has grown exponentially since the beginning of the 21st century (Cole, 2018). Attitudes towards these characters seem mostly favorable, especially among younger people (Navarro, 2021a). This information is corroborated by film industry numbers. In 2021, for example, among the ten highest grossing movies, five were superhero-focused stories, with first place (Spider-Man: No Way Home) becoming the sixth highest-grossing movie of all time (Box Office Mojo, 2022).

Even though they have the most varied narratives and conflicts, some themes seem to be common to works that portray superheroes. In two studies approaching, respectively, superhero movies and TV shows, it was observed that the most frequent topics in the scenes were helping/protecting the public and acts of violence/fighting (Bauer et al., 2016; Kim et al., 2020). Other frequent themes were teamwork, cooperation and the use of lethal weapons.

Thus, we can observe that, despite in a superficial analysis, superheroes being a representation of justice and helping those in need, the fact is that media portraying these characters simultaneously contain high levels of prosocial and aggressive behavior (Rosenkoetter et al. 2009). Even though the violence exerted by superheroes is almost always associated with defensive behaviors (e.g., preventing a villain from harming innocent citizens), objectively these actions create a constant duality, where superheroes have prosocial goals that are carried out using violent means (Santos et al., 2018).

Concerning this discussion, Carney and Carron (2017) point out that superheroes serve as a media tool to reinforce punitive prosocial behavior (a punishment carried out by a third party to defend someone from harm). Therefore, even when superheroes are aggressive, they would represent the upholding of social and moral norms (Carney et al., 2014). Holmgren et al. (2019) suggest the term prosocial violent media to describe this

media category, where the content combines aggressive scenes with prosocial objectives, also highlighting the increasingly common presence of this genre.

But how would this impact consumer behavior, and why is it relevant to study it? As pointed out by Maruo-Schröder (2018), for their prominent role in contemporary culture, superhero stories influence our values and perceptions of social norms, even if these narratives unfold in fictional realities, often discrepant from our own. This statement finds support in theoretical approaches and studies anchored in psychological science.

### **1.1 Media impacts on Aggressive and Prosocial Behavior**

Since Bandura's Theory of Social Learning, it has been observed that our behavioral repertoire is learned by observing models, which include media characters: this impact is especially strong in children and adolescents (Bandura, 1978). As pointed out by Shawcroft and Coyne (2022), this does not mean that the person would repeat the character's behavior identically. If we see Spider-Man saving a child from a villain, one can repeat a version of that behavior helping a lost child at the mall, for example.

Recent theoretical models, such as the General Aggression Model (GAM, Anderson & Bushman, 2002), and its extension, the General Learning Model (GLM, Buckley & Anderson, 2006) also provide evidence that situational variables (e.g., media) have both short-term and long-term behavioral impacts. These variables lead to changes in cognitive-emotional structures, affect the development of information processing biases, and in the case of aggression, increase violence desensitization (Plante et al., 2020). These impacts unfold from the content portrayed in the consumed media.

Even so, it is important to note that most studies based on GAM and GLM use exclusively violent or prosocial stimuli (e.g., Anderson et al., 2017; Coyne et al., 2018). Thus, even understanding the mechanisms by which media impacts either aggressive or prosocial outcomes in both short and long-term, the literature still does not consistently address prosocial violent media formats, such as superhero media (Holmgren et al., 2019).

So the question arises: if superheroes address both positive (e.g., helping others) and negative (e.g., violence) themes as central aspects of their narratives, what are the impacts of these characters on consumers? Especially at a time when parasocial relationships with media characters become increasingly common and realistic, investigating these issues is essential

## Objetivos

The present study aimed to carry out a systematic literature review investigating superhero media's impacts on aggression and prosocial behavior, and related variables.

## Método

This literature review followed the PRISMA criteria (Page et al., 2020), indicated for systematic reviews and meta-analyses.

### 2.1 Eligibility Criteria

The following inclusion criteria were considered: publication in the last ten years (2013 – 2022), be written in English or Portuguese, and being an empirical study (experimental or correlational) that present analyzes that relate the variables (e.g., correlation, regression, t-test). This time interval was used in order to optimize the chances of a representative sample while still obtaining relevant results for the current context (considering that the topic of the review involves media, which is in constant change). Studies with only descriptive results were not considered. To increase the scope of the analyzed publications, studies that measured not only direct behavior (e.g., intention to behave, aggressive trait) were also considered for the final sample.

On the other hand, the following exclusion criteria were considered: other topics related to superheroes (e.g., toys) are the only superhero-related variable, results are incomplete or confusing (e.g., differ in different parts of the manuscript), and, constructs linked to aggression or prosocial behavior are not actually measured, just mentioned.

### 2.2 Data Bases and Search Strategies

In the search for studies that met these criteria, the Scopus, Psycinfo and Scielo databases were used, specifying that the studies should contain some of the combinations of the following descriptors: Superhero (Super-herói) or Hero (Herói) and Aggression (Agressão), Antisocial (Antissocial), Violence (Violência), Prosocial (Pró-social), or Helping (Ajuda). These should be in either the title, abstract, or keywords. These terms were chosen based on the literature on the topic, in order to increase the possibility of

access to research that provided relevant information. In addition to the databases, reference lists of studies were also used as a secondary source.

**\*\*Figure 1 around here\*\***

### **2.3 Data Collection and Quality**

We carried out the database search between May 30 and June 6, 2022. All studies that met the inclusion criteria were initially registered on a list. After the exclusion of repeated manuscripts, these papers underwent a more in-depth reading for the selection of the final sample. This analysis was performed by two researchers working independently, with the possibility of consulting a third evaluator in case of disagreement about a study. Initially, 443 studies were found in the databases, with 18 matching the study inclusion criteria. However, applying the exclusion criteria, three studies were excluded for not directly measuring any variable regarding aggression or prosocial behavior, two for not focusing on superhero media (e.g., using superhero toys instead), and one for not having superhero media as a main focus. Thus, 12 studies formed the final sample (retention rate of 2.71%).

**Figure 1** details the data collection process.

Regarding data quality, we examined risk-of-bias using five questions based on Sterne et al. (2019) guidelines. These questions focused on the randomization process (if applicable), deviations from the main study goal, missing outcome data, measurement of the outcome and selection of the reported results. When any possibility of bias was observed, the specifics were pointed out in a table, which will be presented in the Results section.

**\*\*Figure 1 around here\*\***

### **2.4 Data Analysis**

Initially, bibliometric information was compiled, as well as sample details, measurement methods, and a summary of the main results. Next, a qualitative synthesis was carried out, divided between the data regarding aggressive and prosocial behaviors, and variables related to these other than the superhero media.

## Resultados

Among the 12 studies, there were publications in the period between 2013-2020, with substantial variability in the journals, which were mostly focused on Psychology (58.33%). There was also considerable variation in the participants' age groups, with half of the studies addressing children and adolescents and the other half adults (mostly university students). More information about descriptive and bibliometric data can be seen in **Table 1**.

**\*\*Table 1 around here\*\***

After observing general data within the publications, information was gathered regarding the measurement strategies, as well as the main results obtained (**Table 2**). To measure prosocial behavior, the most used method was the pen technique in experimental studies. This consists of the experimenter “accidentally” dropping a cup of pens near the participant, where the time taken to help and the number of pens collected are used as behavioral measures (Rosenberg, 2013).

On the other hand, regarding aggression, the most used instrument was the Buss-Perry Aggression Questionnaire, a self-report measure that addresses 4 sub-dimensions of the aggression trait: physical aggression, verbal aggression, anger and hostility (Betzael & Shechtman, 2017). The specific studies' results will be summarized in the following subtopics.

Finally, risk of bias was assessed. As detailed in **Table 3**, four studies had problems regarding outcome measurement. Two of them had missing information and two had instruments with reliability scores lower than recommended.

**\*\* Table 2 around here\*\***

**\*\*Table 3 around here\*\***

### Aggressive Behavior

Seven studies addressed variables related to aggressive behavior, including hostility (Cingel et al., 2020; Happ et al., 2013), the aggressive trait (Betzalel & Shechtman, 2017; Santos et al., 2018), relational and physical aggression (Coyne et al., 2017), and aggression intention (Yoon & Vargas, 2014). Overall, the results were mixed, with some cases showing a positive, negative, or no relationship whatsoever between superhero media consumption and aggression.

Using the studies regarding hostility as an example, Happ et al. (2013) observed an interaction between the experimental condition (hero or villain) and empathy in hostile perception bias. When the participant played with a superhero, empathy led to a perception of less hostility on neutral faces, whereas when the character was a villain, the effect was opposite.

On the other hand, in their experiment Cingel et al. (2020) did not observe main or interaction effects on hostility. But what sets the two studies apart? Two main differences can be pointed out: the age of the participants (young adults versus teenagers) and the superhero media format used (games versus TV show episodes).

The context of superhero media consumption also seems to differentiate the results. When superheroes are used for the purpose of highlighting the positive aspects of these narratives (e.g., helping others, overcoming struggles), there's a long-term decrease in aggression (Betzalel & Shechtman, 2017). On the other hand, when daily consumption is measured, such as entertainment media, positive relationships with aggression emerge (Coyne et al., 2017; Santos et al., 2018).

### **Prosocial Behavior**

In the ten studies concerning prosocial behavior, four measured behavior directly (Happ et al., 2013; Peña & Chen, 2017; Rosenberg et al., 2013; Van Tongeren et al., 2018), and seven behavioral intention and prosocial attitudes (Cingel et al., 2020; Mesurado et al., 2018; Mesurado et al., 2020; Peña & Chen, 2017; Rosenberg et al., 2013; Santos et al., 2018; Van Tongeren et al., 2018). Results showed greater uniformity compared to aggression: all studies found an increase in prosocial behavior or intention when participants were exposed to superhero media.



However, it is important to note that the circumstances of this increase varied between studies. In the research by Santos et al. (2018), for example, a positive relationship was observed between prosocialness and superhero media consumption only in the girls in the sample. In the results by Mesurado et al. (2018), the intervention using superhero media was effective only in promoting the intention of prosocial behaviors with strangers and family members, not with peers of the same age. Based on this information, it was necessary to investigate the variables that contributed to the relationship between superheroes and aggression/prosocial behavior.

### **Other Relevant Variables**

Finally, four variables were identified as relevant in understanding the relationship between superhero media and aggression/prosocial behavior: gender (Cingel et al., 2020; Santos et al., 2018), empathy (Happ et al., 2013), character identification (Yoon & Vargas, 2014) and meaning in life (Van Tongeren et al., 2018). These results are presented below.

Cingel et al. (2020) and Santos et al. (2018) presented divergent results regarding the impact of gender, even though both studies addressed adolescents. While the first research observed that, in an experiment, exposure to superhero media violence generated prosocial responses only in boys, the other study observed that, in the long term, consuming superhero media was related to positive outcomes in girls (more prosocialness) and negative outcomes in boys (less prosocialness and more anger).

Finally, the remaining variables showed the following results: as discussed earlier, empathy had positive impacts (less aggressive interpretation of neutral faces) only in the condition where participants played with a superhero in the study by Happ et al. (2013). Similarly, the study by Yoon and Vargas (2014) pointed out that participants who played a game as superheroes attributed more chocolate and less chili sauce to a future participant. Furthermore, playing as a character (hero or villain) had more impact on behavior than merely observing a situation portraying that character. However, concerning meaning in life, the results only showed an indirect impact of superhero exposure, mediated by prosocial intention (Van Tongeren et al., 2018).

## Discussão

This study aimed to carry out a systematic review on the relationships between superhero media, aggression and prosocial behavior, in addition to investigating other variables involved in this process. This objective was achieved, and 12 studies were identified that answered the proposed questions, which were summarized and compared.

A starting point to be noted is the lack of studies on the topic. Even with a ten-year interval, few studies regarding the theme were found. Concerning the samples, children, adolescents and young adults were mostly approached, groups where superhero media are quite popular (e.g., Navarro, 2021b). However, research with older age groups is still needed, especially considering the fact that in a generational analysis, although younger people are still considerably involved with this type of media, superhero media consumption is more common among Millennials (Navarro, 2022; Statista Research Department, 2022).

Still talking about sampling issues, sample size may be one of the factors responsible for the inconclusive results, especially on aggression. A considerable portion of the research addressed used small samples, even in experimental studies with multiple conditions, which can decrease statistical power. Kim et al. (2020), for example, recommend that experimental research on media impacts should have at least 100 participants per experimental condition. This is a caution to be considered in future studies.

Another issue is that the variety of age groups across studies may also have impacted the results. As pointed out by Carlo and Padilla-Walker (2020), the influence of situational variables (such as the media) on prosocial behavior is different according to the developmental stage. This impact is similar in aggressive behavior (Jambon et al., 2019). In children, for example, the most significant effects will be in emotional and behavioral regulation, while in adolescents in the learning of scripts used in interpersonal relationships (Gentile & Sesma, 2003). Thus, future studies may compare short-term and long-term effects across different age groups to better understand development's role in superhero media effects.

Focusing on the main results, the studies pointed to a relationship between greater consumption of superhero media and more prosocial behaviors. As pointed out by Buckley & Anderson (2006), media with prosocial themes impacts the development and change of cognitive (e.g., beliefs) and cognitive-emotional structures (e.g., attitudes) as well as affective traits (e.g., empathy). This statement is exemplified by Greitemeyer's study (2011), where playing prosocial games increased the accessibility of thoughts of this nature, with participants recognizing words associated with prosociality quickly.

Another possibility is that even when they act aggressively, superheroes are motivated by defending society, bringing a prosocial justification for their behavior (Carney et al., 2014). Future studies can experimentally investigate this hypothesis, for example, comparing the impacts of a scene where a superhero is involved in an interpersonal fight versus one of their typical adventures saving the world.

On the other hand, the impacts of superhero media on aggression do not yet present conclusive results, and further studies are necessary to investigate potential mediators and moderators in this relationship. An observed possibility of a variable that can impact this relationship is the media format: in studies addressing both aggressive and prosocial behavior, conditions using games were more effective in finding short-term effects. This information is corroborated by Coyne et al. (2018), who point out that active media (where the consumer interacts directly with the content) have greater behavioral impacts than passive media (such as series and movies).

Another alternative to the inconclusive aggression results is the variability in the specific constructs addressed and the measurement strategies. Both issues were more consistent in studies about prosocial behavior. Furthermore, unlike the pen dropping technique, for example, none of the studies on aggression measured aggressive behavior directly, which consequently may have affected the results due to response biases resulting from self-report measures (Kreitchmann et al., 2019). Finally, it is necessary to take into account the opposite impact of social desirability on these two constructs in the future.

Additionally, the central topic of the stimuli used also indicates an impact on the aggression x superheroes relationship. When the media focuses on the positive actions of these characters, such as helping others, aggression decreases (Betzael & Shechtman,

2017). Although this is important information, which can help in the development of intervention activities using superheroes, it also drives the question: do the superhero media that we consume on a daily basis have more pro-social or violent themes?

Research by Bauer et al. (2016) and Kim et al. (2020), which analyzed positive and negative themes in superhero films and TV shows, points out that negative events occur more frequently, especially violence, use of lethal weapons, and intimidation. On their investigation concerning prosocial violent media, Holmgren et al. (2019) also concluded that this content is more similar to violent than prosocial content. This may explain the results of Santos et al. (2018), who observed a partial correlation between superhero media consumption in general and anger.

On the other hand, studies by Happ et al. (2013) and Yoon and Vargas (2014) have shown that when one identifies with a heroic character (e.g., assuming this identity in a game) our behavior tends to be more positive. The identification process involves adopting attitudes, beliefs and values of the person/character with which the audience identifies (or that this consumer believes are endorsed by the character) (Brown, 2015). However, it is important to note that both studies focused only on the short-term effects of self-identification. Other studies on media consumption show that identifying with characters who act violently has long-term consequences for aggressive behavior (e.g., Greenwood, 2007).

This phenomenon happens due to the fact that exposure to violent media is a risk factor for similar behaviors (Groves et al., 2020). Exposure to these contents leads, in the long term, to an increase in behavioral scripts, aggressive beliefs and attitudes (through the observational learning process) and desensitization to violence (Plante et al., 2020). Within these impacts, it is also necessary for future studies to investigate antiheroes, since their actions deviate from traditional heroism, and even with the moral ambiguity these characters are usually quite popular with the public. (Krakowiak & Tsay-Vogel, 2013).

### **Theoretical and Practical Implications**

The main theoretical contribution of this systematic review is for investigations regarding media impacts on behavior and other psychosocial processes (e.g., General Aggression Model, General Learning Model): when we use a stimulus in an experiment

or ask a participant about their consumption of certain types of media (e.g., violent), we assume that the effects of these media are unidirectional. Watching or playing violent entertainment media indeed does have impacts on this specific behavior (e.g., Anderson et al., 2017; Miles-Novelo et al., 2022).

However, this scenario can be affected by our perceptions of characters portrayed in violent media. As demonstrated in the study by Cingel et al. (2020), in the short term we can even act in a prosocial way by seeing a superhero act violently. Thus, we emphasize not only the need to investigate these ambiguous effects, but also to take them into account in the design of media research. The previous perception of a character impacts a participant's responses, even if for a neutral observer a scene or game exhibits the characteristics of a violent or prosocial stimulus. These examples also highlight the need for further investigation regarding prosocial violent media, and its impacts on different audiences.

This discussion should also guide interventions using superheroes, especially with children and adolescents. Therefore, if the focus of the message (fighting vs. helping and protecting) impacts outcomes (Betzalet & Shechtman, 2017; Coyne et al., 2017), these activities could be more effective when they focus on the representation of the superhero as a figure of care, not a symbol of strength. The HERO program is an example of this statement, focusing on topics such as empathy, gratitude and forgiveness (Mesurado et al., 2018).

### **Considerações finais**

The present study contributes to the existent literature on the impacts of media on behavior, especially regarding content that present ambiguous situations, with the same characters who are considered “good” and representatives of positive aspects, being constantly involved in acts of violence. We also address some methodological issues that need attention in future studies, such as the use of samples that contribute to better statistical power.

Despite that, the study is not free from limitations. The low number of studies on the topic impacts the results presented, especially those that addressed aggression. Since

both measurement strategies, and the aggressive variables measured by the studies were heterogeneous, the comparison of results between studies must be carried out cautiously. Another weakness is the fact that only studies in English or Portuguese were addressed, restricting access to research in other realities. Finally, missing information regarding measurement strategies identified in the risk of bias analysis may have impacted the observed results.

In her book *Everneath*, Brodi Ashton wrote: “Heroes are made by the paths they choose, not the powers they are graced with”. Regardless of their abilities, what paths have superheroes, the representatives of the hero figure in contemporary media, chosen, and how does this impact viewers? The results presented here demonstrate the complexity of the relationship between superheroes and prosocial/aggressive behavior. This intricacy points to topics that need to be investigated by future studies, such as the long-term impacts on aggression, the role of violence justification and how to maximize superheroes’ positive impacts. Furthermore, variables presented in this review, namely gender, empathy and identification need to be further studied.

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**Table 1***Main Manuscripts' Data.*

<b>Authors and Publication Year</b>	<b>Title</b>	<b>Journal</b>	<b>Sample</b>
Happ et al., 2013	Superman vs. BAD Man? The Effects of Empathy and Game Character in Violent Video Games	Cyberpsychology, Behavior and Social Networking	60 undergraduate students ( $M_{age} = 22.13$ , 66.6% female).
Rosenberg et al., 2013	Virtual Superheroes: Using Superpowers in Virtual Reality to Encourage Prosocial Behavior	Plos One	60 participants (50% female).
Yoon and Vargas, 2014	Know Thy Avatar: The Unintended Effect of Virtual-Self Representation on Behavior	Psychological Science	Study 1: 194 undergraduate students ( $M_{age} = 20.34$ , 51% female). Study 2: 125 undergraduate students ( $M_{age} = 19.42$ , 64.8% female)
Betzalel and Shechtman, 2017	The impact of bibliotherapy superheroes on youth who experience parental absence	School Psychology International	Kids and teenagers in foster care (36.9% female).

Coyne et al., 2017	Pow! Boom! Kablam! Effects of Viewing Superhero Programs on Aggressive, Prosocial, and Defending Behaviors in Preschool Children	Journal of Abnormal Child Psychology	240 preschoolers ( $M_{age} = 57,81$ months, 51% female).
Das-Friebel et al., 2017	Investigating Altruism and Selfishness Through the Hypothetical Use of Superpowers	Journal of Humanistic Psychology	302 adults ( $M_{age} = 24.97$ , 61.2% female).
Peña and Chen, 2017	With Great Power Comes Great Responsibility: Superhero Primes and Expansive Poses Influence Prosocial Behavior After a Motion-Controlled Game Task	Computers in Human Behavior	412 undergraduate students ( $M_{age} = 20.27$ , 81% female).
Mesurado et al., 2018	The Hero program: Development and initial validation of an intervention program to promote prosocial behavior in	Journal of Social and Personal Relationships	51 adolescents ( $M_{age} = 15.02$ , 51% female).

adolescents

Santos et al., 2018	Com Grandes Poderes Vem... O Que? Super-Heróis, Agressividade e Pró-Sociabilidade em Adolescentes [With Great Power comes... What? Superheroes, Aggression and Pro-sociality in Teenagers]	Revista de Psicologia da IMED	240 adolescents ( $M_{age} = 14,94$ , 55.8% female).
Van Tongeren et al., 2018	Heroic Helping: The Effects of Priming Superhero Images on Prosociality	Frontiers in Psychology	Study 1 1: 246 adults (44.7% female). Study 2: 123 undergraduate students (68.2% female).
Cingel et al., 2020	How Does She Do It? An Experimental Study of the Pro- and Antisocial Effects of Watching Superhero Content among Late Adolescents	Journal of Broadcasting & Electronic Media	145 adolescents ( $M_{age} = 16.81$ , 66.9% female).
Mesurado et al., 2020	Study of the efficacy of the Hero program: Cross-national evidence	Plos One	909 adolescents ( $M_{age} = 13.45$ ).





**Table 2***Measures and Main Results.*

<b>Authors and Publication Year</b>	<b>Measures</b>	<b>Main Results</b>
Happ et al., 2013	Face perception task (Hostile Perception Bias), lost letter technique (prosocial behavior).	Playing using a superhero led to 6.2 more chances of prosocial behavior compared to a villain. In addition, empathy moderated the relationship between used character and hostile perception bias.
Rosenberg et al., 2013	Pen dropping technique (prosocial behavior), Intention to help questionnaire,	Volunteers who participated in a superpower simulation helped the most, although there were no significant differences regarding the use of this power.
Yoon and Vargas, 2014	Character Identification Items, Food allocation Technique.	Participants who played as a villain assigned more chili sauce to a future participant.
Betzalel and Shechtman, 2017	<i>Modified National Youth Survey</i> , Buss-Perry Aggression Questionnaire.	Participants in the superhero bibliotherapy condition showed a decrease in aggression and violent behavior, both in short and long term.
Coyne et al., 2017	<i>Preschool Social Behavior Survey</i> (Adapted Parental Version).	After one year, participants with higher superhero consumption showed higher levels of physical and relational aggression.
Das-Friebel et al., 2017	Super-powers Questionnaire	Despite participants preferring positive powers over negative ones (e.g., poison generation), and choosing positive powers

being associated with personal/social benefits, participants more commonly wanted to use powers for exclusively personal goals.

Peña and Chen, 2017	Pen dropping Technique (prosocial behavior), Prosocial Behavior Intention Item.	Participants in the superhero priming condition helped faster compared to the control group, despite no significant differences in the magnitude of help (pens collected).
Mesurado et al., 2018	Values in Action Inventory of Strengths (only the Kindness and Generosity subscale).	The intervention was effective in promoting prosocial behaviors towards strangers and family members.
Santos et al., 2018	Superhero Consumption Scale, Buss-Perry Aggression Questionnaire, Prosocialness Scale.	In girls, consuming superheroes was positively related to prosocialness, while in boys this correlation was negative, in addition to a positive relationship with anger.
Van Tongeren et al., 2018	Sceneries (prosocial behavior intention), Help in another study (prosocial behavior).	Exposure to superhero images led to greater intent to help and prosocial behavior.
Cingel et al., 2020	Strengths and Difficulties Questionnaire (prosocial behavior intention subscale), Defending Behavior Scale, State Hostility Scale.	Exposure to violent superhero content led to prosocial behavior intention in boys.
Mesurado et	Values in Action	The intervention was effective in promoting

al., 2020	Inventory of Strengths (only the Kindness and Generosity subscale), Empathy Questionnaire, Positive Emotions Questionnaire, and Forgiveness Scale.	prosocial behavior, empathy, positive emotions, and forgiveness.
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**Table 3.**

*Risk of Bias.*

Authors / Year	RP	SG	MOD	MO	SRR
Happ et al., 2013	-	-	-	-	-
Rosenberg et al., 2013	-	-	-	A correlation regarding coding of the pens' technique was missing its p value.	-
Yoon and Vargas, 2014	-	-	-	-	-
Betzalel and Shechtman, 2017	-	-	-	-	-
Coyne et al., 2017	-	-	-	The Superhero engagement measure had an $\alpha < 0.70$ in Stage 2.	-
Das-Friebel et al., 2017	N/A	-	-	-	-
Peña and Chen, 2017	-	-	-	-	-
Mesurado et al., 2018	N/A	-	-	-	-
Santos et al., 2018	N/A	-	-	Reliability scores for the aggression and Prosocialness measure weren't presented.	-
Van Tongeren et				The Self-report altruism scale had an $\alpha$ < 0.70 in Study 2	

al., 2018

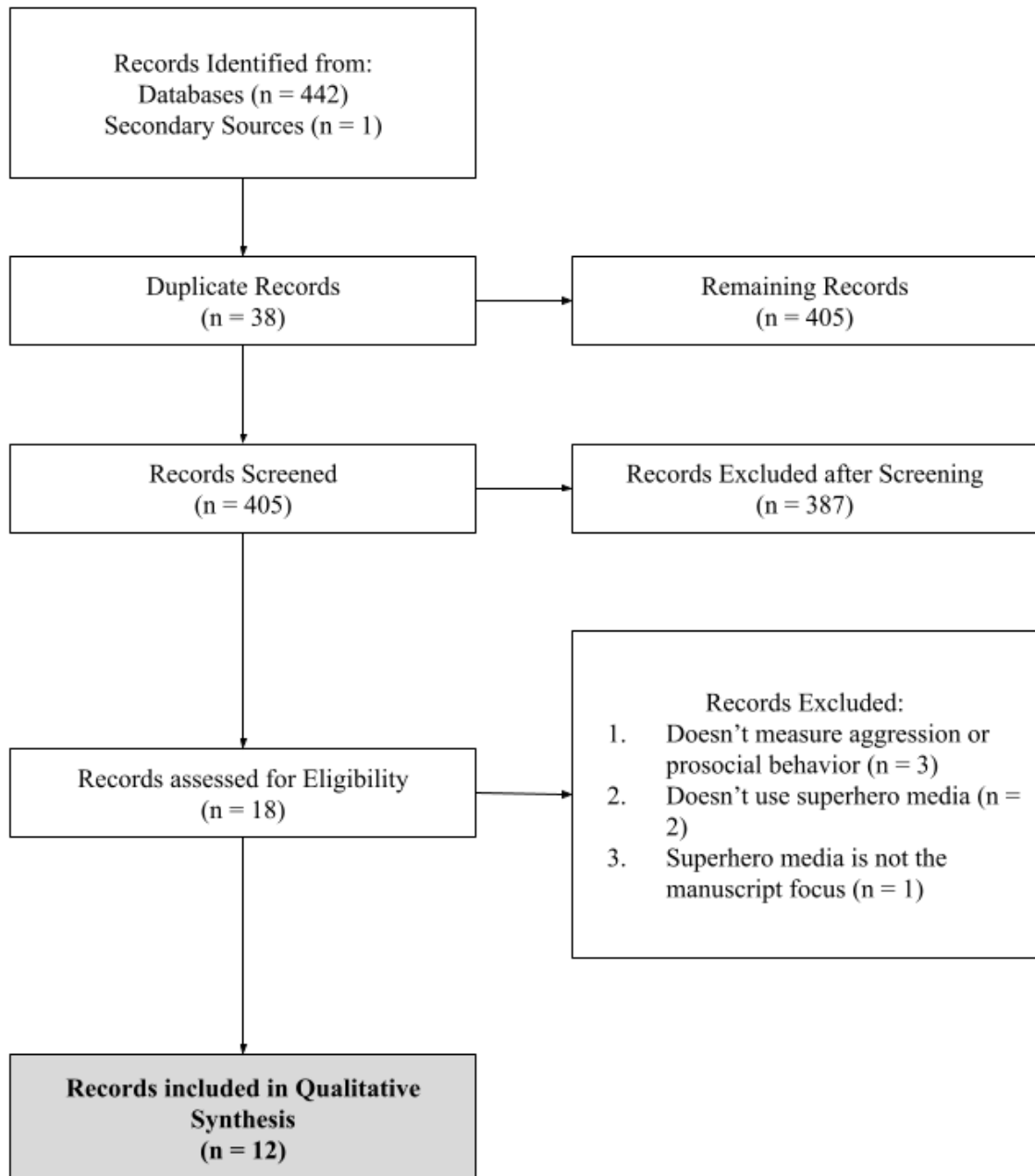
Cingel et al., 2020	-	-	-	-	-
Mesurado et al., 2020	-	-	-	-	-

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**Notes: RP = Randomization Process, SG = Deviations from main study goal, MOD = Missing outcome Data, MO = Measurement of the Outcome, SRR = Selection of Reported Results, N/A = Not applicable.**

**Figure 1.**

*PRISMA Diagram.*



**Figure Captions List**

Figure 1. Descriptors Used in the Search.

Figure 2. PRISMA Diagram.