Fictional friends and enemies as first aid after ostracism? Experimentally investigating the potential of para-/orthosocial relationships in belongingness need restoration and emotion regulation

Sarah Lutz 1,1, Frank M. Schneider 2,3,*,1, Sabine Reich 4, Michelle Schimmel 5, Hannah Oechler 5, Laura Beinlich 5

1Institute for Media Research, Chemnitz University of Technology, Chemnitz, Germany
2Amsterdam School of Communication Research (ASCoR), University of Amsterdam, Amsterdam, The Netherlands
3Everyday Media Lab, Leibniz-Institut für Wissensmedien (IWM), Tübingen, Germany
4Centre for Media, Communication and Information Research, University of Bremen, Bremen, Germany
5Institute for Media and Communication Studies, University of Mannheim, Mannheim, Germany

Abstract

Being socially excluded seriously threatens individuals’ need to belong and emotional well-being. This article investigates to what extent different coping strategies help overcome these detrimental effects: thinking about real-life friends/enemies (i.e., orthosocial relationships, OSRs) and thinking about (dis)liked media characters (i.e., parasocial relationships, PSRs). Across three experiments (N_{Study1} = 132, N_{Study2} = 865), we first induced social exclusion using a virtual ball-tossing game. Afterward, we manipulated different relationship types and valences and compared them to non- or less-relational control conditions. As hypothesized, belongingness and emotional well-being increased from pre- to post-coping. This effect was fully mediated by perceived relationship closeness to the respective personal. Highlighting that PSRs represent more than surrogates (i.e., secondary replacements of OSR), both relationship types did not differ in coping effectiveness. Moreover, positive relationships were more effective in fulfilling both coping goals than negative ones.

Keywords: social exclusion, ostracism, coping, parasocial relationships, social surrogate

Humans are social animals driven by the fundamental need to form and maintain temporally stable interpersonal relationships (Baumeister & Leary, 1995). Nothing threatens this need to belong more than being socially excluded (Williams & Nida, 2011). As perceived loneliness and social isolation are even associated with an increased mortality risk (Holt-Lunstad et al., 2015), threatened belongingness is sometimes also referred to as social death (Williams, 2007). A frequently studied form of social exclusion is ostracism, defined as being ignored by others (Wesselmann et al., 2017). Feeling ostracized also seriously affects individuals’ emotional well-being (e.g., Williams, 2009). Thus, ostracized individuals are highly motivated to restore their inclusionary status. To regulate their need to belong, they usually try to interact socially with others directly (e.g., Knowles et al., 2015). However, when direct social interactions are temporarily unavailable, indirect social strategies—such as simply reminding oneself of existing social relationships—may satisfy thwarted belongingness (Gabriel et al., 2016; Gardner et al., 2005; Paravati et al., 2021). Social relationships are mentally represented, and their activation can trigger associated concepts such as social interaction and interpersonal closeness (Baldwin, 1992). Such mental representations of social relationships and interactions can be directly accessed but also activated by external reminders like photographs of loved ones. However, as they are not the same as genuine human interactions, they are often called symbolic social bonds (Gabriel et al., 2016; Paravati et al., 2021). Still, like direct interpersonal interactions, activated symbolic social bonds have been connected to belongingness need fulfillment and thus may serve as an effective strategy to deal with social exclusion (Gabriel et al., 2016).

Besides the potential benefits of thinking about “real-life” relationships, a large body of research investigated the role of parasocial relationships (PSRs)—intimate non-reciprocal relationships with media personae (Horton & Wohl, 1956)—in coping with ostracism (for an overview, see Gabriel & Valenti, 2017). The most commonly studied personae in this field are musicians (Paravati, 2020), celebrities (Ianone et al., 2018; Timeo et al., 2020), and favorite characters portrayed in books (Gabriel et al., 2017) or movies (Derrick et al., 2009). These studies have shown that even the cognitive activation of PSRs (i.e., thinking or writing about personae) benefits socially excluded individuals. This is possible as PSRs refer to long-term mental associations with media personae that extend beyond the media exposure situation (Dibble et al., 2016). Thus, similar to the above-mentioned mental representations of social relationships (Baldwin, 1992), activated mental representations of PSRs may also trigger associated concepts such as (parasocial) closeness and fortify threatened belongingness.

*Corresponding author: Frank M. Schneider. Email: f.m.schneider@uva.nl

†Shared first authors

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This is an Open Access article distributed under the terms of the Creative Commons Attribution License (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted reuse, distribution, and reproduction in any medium, provided the original work is properly cited.
Despite their coping potential, PSRs are often labeled “social surrogates.” As criticized by Gabriel et al. (2016), this term implies a secondary standing of PSRs as mere replacements for reciprocal relationships—conceptualized as orthosocial relationships (OSRs; Horton & Wohl, 1956). However, communication research implies that media personas represent powerful coping agents on their own. Several theoretical arguments suggest that both types of relationships—PSRs and OSRs—exist parallel (Giles, 2002; Hartmann, 2017; Klimmt et al., 2006). However, to our best knowledge, cognitively activating both relationship types has rarely been directly compared concerning exclusion-specific coping goals like belongingness need restoration and emotion regulation. Consequently, this article investigates whether PSRs and OSRs represent equivalent coping resources for socially excluded individuals.

Moreover, it extends previous research that predominantly conceptualized (para-)social relationships as positively valenced (Liebers & Schramm, 2019). As media users also form relationships with characters toward whom they harbor an aversion (Hartmann et al., 2008; Rasaen & Dibble, 2016; affective disposition theory, Raney, 2004), this one-sided perspective is conceptually dubious and unnecessarily limiting (Dibble & Rasaen, 2011). As further specified by Tuckachinsky Forster and Click (2023), such non-amicable relationships can entail feelings of discomfort, dislike, and even animosity. Due to contradicting theoretical assumptions about the coping effectiveness of negative PSRs/OSRs (Baumeister & Leary, 1995; Rudert et al., 2019), distinguishing different relationship valences is particularly interesting. In sum, this article deals with the following overarching research problem: To what extent do cognitively activated PSRs versus OSRs—depending on their valence—help socially excluded individuals restore their belongingness and emotional well-being? We address this problem in three experiments: Our pilot study compares positively valenced PSRs and OSRs, Study 1 (S1) additionally differentiates between positive and negative relationships, and Study 2 (S2) adds the mediating role of relationship closeness in the interplay of cognitively activating PSRs/OSRs and the improvement of individuals’ belongingness and emotional well-being.

Theoretical background

Detrimental short-term effects of social exclusion experiences

According to the temporal need-threat model (TNTM), social exclusion threatens individuals’ fundamental needs for belonging, self-esteem, meaningful existence, and control (Williams, 2009). In the literature on human needs, belongingness seems of particular importance. For instance, the belongingness hypothesis conceptualizes this need as crucial for human functioning (Baumeister & Leary, 1995). Concerning the need-threatening effect, a meta-analysis involving 120 experiments using a virtual ball-tossing game—Cyberball—to manipulate ostracism revealed a large effect size ($d = -1.36, 95\% \text{CI} [-1.54, -1.18]$; Hartgerink et al., 2015). More recent experiments also identified the detrimental effects of ostracism on individuals’ belongingness (e.g., Lutz & Schneider, 2021; Tobin et al., 2018). Thus, this article focuses on the need to belong as a human desire to form interpersonal relationships, be part of a group, and feel connected.

Following the TNTM, socially excluded individuals also suffer negative emotional consequences (i.e., reduced positive and increased negative affect; Williams, 2009). This aligns with the definition of emotional well-being as (un)pleasant moods and emotions to specific live events (Diener et al., 1999). Several researchers tested the immediate emotional reactions to ostracism postulated within the TNTM and linked social exclusion to impaired emotional well-being (de Gennaro et al., 2020; Reich et al., 2018; Schneider et al., 2017; Tang & Duan, 2023).

Although belongingness and emotional well-being are often strongly related empirically (e.g., Lok & Dunn, 2022; Malone et al., 2012), they theoretically represent distinct constructs (e.g., Baumeister & Leary, 1995; Martela & Sheldon, 2019; Tay & Diener, 2011). For instance, need to belong theory (Baumeister & Leary, 1995) and self-determination theory (Ryan & Deci, 2017) propose that belongingness needs must be satisfied to foster well-being. Furthermore, communication research addresses the need to belong (e.g., communicate bond belong theory; Hall & Davis, 2017) and argues that belongingness strongly predicts well-being (Hall & Merolla, 2020). This distinction could also be relevant to coping with social exclusion.

Coping strategies following exclusion experiences

As ostracism has been theorized and empirically supported as both need-threatening and emotionally distressing, Lutz et al. (2023) highlighted two distinct coping efforts: First, coping efforts to fortify threatened needs should restore individuals’ belongingness (Williams, 2009). Second, coping efforts to regulate emotions should “decrease the negative and painful emotional states elicited by social exclusion while maintaining positive feelings associated with social belonging” (Riva, 2016, p. 199). Addressing belongingness need restoration and emotion regulation separately allows for insights into potentially specific effects of coping strategies.

As already outlined above, this article sheds light on two indirect coping strategies socially excluded individuals apply: (a) cognitively activating mental representations of OSRs and (b) cognitively activating mental representations of PSRs (Gardner et al., 2005).

Theoretically, such cognitive coping strategies can be linked to effective belongingness need restoration and emotion regulation (Riva, 2016). However, empirical evidence is lacking in three respects: First, some studies (e.g., Derrick et al., 2019) only investigated whether specific individuals—such as those with a high need to belong—are more likely to cognitively activate OSRs/PSRs. However, they did not explore whether applying these strategies actually leads to higher levels of belongingness. Second, although some studies explicitly measure coping effectiveness, this does not apply to both strategies: For PSRs, research points to effective coping regarding belongingness need restoration (Gabriel et al., 2017) and emotion regulation (i.e., well-being; Derrick et al., 2009). However, OSRs were only associated with effective emotion regulation (e.g., Ahn & Shin, 2013), whereas their potential for belongingness need restoration was rarely investigated (for a recent exception, see Paravati et al., 2021). Third, the studies mentioned above (Ahn & Shin, 2013; Derrick et al., 2009; Gabriel et al., 2017) tested the effects of either PSRs or OSRs but not their (potentially) differential effects by directly comparing these coping strategies.
A few experiments only drew this comparison (with a focus on positively valenced relationships): Stein et al. (2022) found that thinking about a favorite media character had the same mood-enhancing effects as thinking about a close real-life friend. However, this refers to the general effects of cognitively activating PSRs/OSRs, not when using them as specific coping strategies following social exclusion experiences. Going one step further, Twenge et al. (2007) instructed socially excluded participants to think about their favorite family member (i.e., OSR) or celebrity (i.e., PSR). Importantly, as they only focused on emotion regulation, belongingness need restoration remained unexplored. Addressing the latter, Sacco et al. (2021) directly compared how both strategies can restore ostracized individuals’ belongingness. However, in their “PSR” condition, they did not instruct participants to write about their favorite character but their favorite television show. Thus, it remains unclear whether this task activated mental representations of PSRs (Greenwood & Aldoukhov, 2023). Furthermore, as the authors only measured emotional reactions once, comparing pre- versus post-coping scores—thus concluding coping effectiveness—is impossible. The one study closest to our approach was conducted by Timeo et al. (2020). They used the social media ostracism paradigm (Schneider et al., 2017; Wolf et al., 2015) to socially exclude preadolescents and afterward instructed them to either write down their thoughts about their favorite family member (“OSR”), their favorite celebrity (“PSR”), or their present moment feelings (“control”). Their OSR and PSR conditions were more effective in need-threat recovery (including difference scores of belongingness, self-esteem, and meaningful existence) than the control condition but not in emotional recovery.

**Similarities between PSR and OSR**

PSRs develop, maintain, and dissolve similarly to OSRs (Giles, 2002; Hartmann, 2017; Klimmt et al., 2006). Like interpersonal bonds, it is more likely to form relationships with attractive personalities (A. M. Rubin & Step, 2000; R. B. Rubin & McHugh, 1987) and those with the same beliefs and attitudes as oneself (Tian & Hoffner, 2010). A recent meta-analysis (Tukachinsky et al., 2020) also found that the perceived homophily and attractiveness of personae are positively associated with PSR intensity. Moreover, as in non-mediated relationships, frequent exposure (e.g., watching several movies in which personae are depicted) has been associated with a more intense relationship (Bond & Calvert, 2014) and a stronger commitment to the fictional character (Branch et al., 2013). Following Horton and Wohl (1956), PSRs can reach the same level of intimacy as OSRs: Individuals “know such a persona in somewhat the same way they know their chosen friends ... His appearance is a regular and dependable event, to be counted on, planned for, and integrated into the routines of daily life” (p. 216). Moreover, empirical evidence supports that the perceived benefits of PSRs (e.g., guidance in decision-making or feeling better after interacting with personae) are very similar to those received from OSRs (Adam & Sizemore, 2013; Tsay & Bodine, 2012). One explanation for these similarities might be the so-called Panksepp–Jakobson hypothesis, which postulates that human evolution has not yet had enough time to adapt to the existence of fictional media (Panksepp, 2004). Thus, individuals automatically categorize personae as “real people” and react to them similarly emotionally (Reeves & Nass, 1996). Following this rationale, it seems unsurprising that the ending of a PSR (i.e., parasocial breakup) is—comparable to real-life heartache—highly distressing (Cohen, 2003; Eyal & Cohen, 2006). Given the substantial similarity between PSRs and OSRs, Horton and Wohl (1956) postulated a compensatory function of PSRs that can provide socially excluded individuals with “the chance to enjoy the elixir of sociability” (p. 222). More concretely, they argued that “nothing could be more reasonable or natural than that people who are isolated and lonely should seek sociability and love wherever they think they can find it” (p. 223). In a recent meta-analysis dealing with social deficits on a trait level (e.g., trait loneliness), this so-called parasocial compensation hypothesis has not been supported (Tukachinsky et al., 2020). However, findings are rather supportive concerning situational threats to individuals’ inclusionary status. For instance, in two quasi-experiments, Liebers (2022) found that individuals with unfulfilled romantic needs form PSRs. Moreover, experimental evidence shows that following social exclusion experiences, thinking about favorite television programs can enable effective coping (Derrick et al., 2009). This adheres to the psychological principle that ruminating about social ties (so-called “social daydreaming”) can decrease individuals’ loneliness (Mar et al., 2012; Poerio et al., 2016). In a recent longitudinal study during the COVID-19 pandemic (i.e., while engaging in social distancing), parasocial closeness with media personae increased over time (Bond, 2021). These findings support the underlying assumption that the cognitive activation of PSRs represents a coping strategy. However, as already outlined above, it remains unclear whether PSRs represent social surrogates (i.e., mere replacements for something being more meaningful) or have the same coping potential (i.e., belongingness need restoration and emotion regulation) as OSRs.

In light of the theoretical arguments (i.e., TNTM, compensation hypothesis) and empirical findings outlined above, we formulated two hypotheses and one open research question:

**H1:** Following an ostracism episode, the cognitive activation of a PSR improves individuals’ (a) belongingness and (b) emotional well-being.

**H2:** Following an ostracism episode, the cognitive activation of an OSR improves individuals’ (a) belongingness and (b) emotional well-being.

**RQ1:** To what extent do the cognitive activation of PSRs and OSRs differ concerning their improvement of (a) belongingness and (b) emotional well-being following an ostracism episode?

**Pilot study**

**Overarching aims**

Our pilot study, preregistered on AsPredicted (https://t1p.de/qflf), aims to address the question of whether cognitively activating a PSR is equally as effective as cognitively activating an OSR in coping with social exclusion (RQ1). As this was an initial test, we did—at least in this study—focus on positively valenced relationships.
Method
Design and Manipulation
We applied a 2 (social situation: ostracism vs. inclusion) × 2 (relationship type: PSR vs. OSR) between-subjects experiment (see Table 1). To manipulate the social situation, the virtual ball-tossing game Cyberball was used (Williams & Jarvis, 2006). This represents the most prominent tool used in more than 200 published experiments (for an overview, see https://bit.ly/2IrAFxC). Adopting the standard cover story, we introduced this game as a mental visualization task with two other participants logged in simultaneously. The other “players” were programmed scripts whose tossing behavior varied depending on the experimental condition: In the ostracism condition, the participants received only a few ball tosses at the very beginning and were ignored throughout the rest of the game. The initial throws should prevent the participants from attributing the lack of attention to a technical error. In contrast, in the inclusion condition, they continued to receive the ball approximately one-third of the time (i.e., an equal share of throws as the other players).

We manipulated the type of relationship by instructing the participants to imagine either a person close to them (i.e., OSR condition) or their favorite character from a television series (i.e., PSR condition). As liking a character is positively associated with the intensity of parasocial phenomena (Tian & Hoffner, 2010), this specific instruction is a common practice in research on social surrogacy (Greenwood & Aldoukhov, 2023). In both conditions, they should describe this person(a) as detailed as possible and answer several questions (e.g., “What special characteristic does this person/character have?”). The “next” button was deactivated for two minutes to ensure sufficient cognitive activation.

Procedure
Data were collected between April 14 and 28, 2019, in Germany. After consenting to participate in this study, the participants were randomly assigned to play Cyberball in the inclusion or ostracism condition. The following page contained an attention check, a manipulation check item, and two questions concerning potential technical problems. Subsequently, we measured participants’ experiences (i.e., belongingness and emotional well-being) during the game (t1 measure). After cognitively activating either a PSR or OSR, we assessed their experiences again (t2 measure). At the end of the questionnaire, the participants provided demographic information, answered a suspicion check item, had the option to leave additional feedback, and were debriefed. On average, they completed the questionnaire in 640 seconds (SD = 116.93).

Table 1. Pilot study—design; 2 (social situation: ostracism vs. inclusion) × 2 (type of relationship: PSR vs. OSR) between-subjects design

<table>
<thead>
<tr>
<th>Factor 1: Social situation</th>
<th>Factor 2: Type of relationship</th>
<th>Ostracism</th>
<th>Inclusion</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Positive OSR</td>
<td>being ignored after a few initial ball tosses × describing a close person (n = 33)</td>
<td>receiving the ball an equal share of throws × describing a close person (n = 30)</td>
</tr>
<tr>
<td></td>
<td>Positive PSR</td>
<td>being ignored after a few initial ball tosses × describing a favorite character from a television series (n = 25)</td>
<td>receiving the ball an equal share of throws × describing a favorite character from a television series (n = 41)</td>
</tr>
</tbody>
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Measures
Attention Check. We instructed the participants to choose the name of the other two Cyberball “players” (i.e., Lena93 and Tom4) out of three name pairs. They also had the option to leave this question unanswered or select “I don’t know.”

Manipulation Check (Social Situation). The participants should select whether they received the ball “approximately as often as the other players,” “never,” or “only once.” This aligns with previous experiments conceptualizing the estimation of perceived throws as an indicator for internalized manipulation (e.g., Wolf et al., 2015).

Technical Check. We also asked whether the participants could finish the game without experiencing technical difficulties. If choosing the answer option “no,” they were instructed to describe their technical problems using an open text field.

Belongingness. Belongingness was measured using selected items of the Belonging subscale of the Need-Threat Scale (Jamieson et al., 2010) and the General Belongingness Scale (Malone et al., 2012).2 The eight items (e.g., “I felt like an outsider” or “I felt accepted”) could be answered on a scale from 1 (strongly disagree) to 5 (strongly agree). Using these items, the participants should both describe their feelings “during the online game” (McDonald’s ωt1 = 0.94) or “at the moment” (ωt2 = 0.84). We recoded all negatively worded items so that lower scale values represent a more severe need threat.

Emotional Well-Being. Emotional well-being was assessed using the Scale of Positive and Negative Experience (SPANE; Diener et al., 2010). This scale contains six positively valenced (e.g., “happy: ωt1 = 0.95, ωt2 = 0.94) and six negatively valenced (e.g., “sad: ωt1 = 0.90, ωt2 = 0.93) items. We aggregated these items to a SPANE-P and a SPANE-N subscale using sum scores. As answers were collected on a scale ranging from 1 (strongly disagree) and 5 (strongly agree), both subscales can vary from 6 (lowest possible) to 30 (highest possible). Following the procedure by Diener et al. (2010), we calculated an overall affect balance score (SPANE-B) by subtracting the negative from the positive feelings score. Consequently, negative values (minimum: –24) reflect impaired emotional well-being. In contrast, positive values of this difference score (maximum: +24) accord with high well-being.

Supplementary Appendix A contains Pearson correlations between dependent variables and their (group-specific) descriptives. Moreover, we collected several demographic
variables (i.e., participants’ age, gender identity, and educational level; see OSF file “Codebook_Pilot.pdf”).

Participants
In line with previous research (e.g., Hartgerink et al., 2015), we assumed medium to large effects of the Cyberball manipulation on belongingness ($f = 0.34$, requiring $N_{\text{minimum}} = 96$) and on emotional well-being ($f = 0.48$ requiring $N_{\text{minimum}} = 40$; see OSF file “Sample Size Calculation_Pilot.pdf”). To provide a buffer for data cleaning, we aimed to collect about 150 participants. The convenience sample was recruited using messenger services (e.g., WhatsApp), social network sites (e.g., Facebook, Instagram, Xing), and the online portal Survey Circle. The raw data ($N = 168$) were cleaned by applying the following criteria: We removed participants from data analysis who identified the study’s aim ($n = 26$), did not follow the instruction to describe a PSR/OSR ($n = 11$), reported technical problems while playing Cyberball ($n = 1$), or incorrectly answered the attention check question ($n = 1$). Corresponding to the preregistered $N$, the final sample consisted of 129 participants. On average, they were 26 years old ($SD = 5.12$, range = 17–54), most identified as female (72%), and highly educated (41% had a bachelor’s degree and 36% a general qualification for university entrance).

Results
Data (see OSF folder “data_Pilot”) were analyzed using the software R (see OSF file “Pilot.html”). Significant differences in the estimation of received ball throws depending on the experimental condition indicated a successful social situation manipulation, $\chi^2(1, 129) = 121.06$, $p < .001$, Cohen’s $\omega = 0.98$. The answer “only once” was always chosen in the ostracism but never in the inclusion condition. In contrast, the answer “approximately as often as the other players” was more frequently selected in the inclusion (99%) than in the ostracism condition (1%). Two $t$ tests were calculated to assess the effects of the social situation manipulation at $t_1$ (i.e., after playing Cyberball): Compared to participants in the inclusion condition ($M = 3.64$, $SD = 0.83$), those in the ostracism condition ($M = 1.95$, $SD = 0.69$) were significantly more threatened in their belongingness, $t(127) = 12.38$, $p < .001$, Cohen’s $d = 2.20$. There was also a significant effect for emotional well-being, $t(127) = 10.19$, $p < .001$, $d = 1.80$, with positive values in the inclusion ($M = 9.13$, $SD = 8.15$) and negative ones in the exclusion condition ($M = -6.52$, $SD = 9.27$).

Afterward, we calculated difference scores for belongingness and well-being, respectively, and performed two ANOVAs, each predicting the respective outcome variable (i.e., belongingness and emotional well-being) by social situation, relationship type, and their interaction. Addressing RQ1 (i.e., differential effects of OSRs vs. PSRs), relationship type neither had a significant main effect on belongingness, $F(1, 125) = 0.75$, $p = .389$, $\eta^2_p = .006$, nor on emotional well-being, $F(1, 125) = 0.29$, $p = .529$, $\eta^2_p = .002$. Belongingness and well-being improved significantly from $t_1$ to $t_2$ for both relationship types (effect sizes ranged from $d_2 = 0.83$ to $1.35$, see Supplementary Appendix A3). Contrast analyses showed that the difference scores of ostracized participants did not significantly vary depending on the relationship type: Supporting the ANOVA results, directly comparing the PSR and OSR conditions did not yield significant differences for belongingness, estimate = −0.39, $SE = 0.23$, $t(125) = -1.73$, $p = .086$, $d = -0.31$, and for well-being, estimate = 0.09, $SE = 2.74$, $t(125) = 0.03$, $p = .974$, $d < 0.001$.

Discussion
In line with Hartgerink et al. (2015), our pilot study supported the effectiveness of the Cyberball paradigm. Moreover, participants’ answers concerning the writing tasks revealed that both relationship types can be cognitively activated in an experimental setting. Directly comparing both coping strategies revealed that PSR and OSR can be associated with similar levels of improvement in both exclusion-specific coping goals (i.e., belongingness restoration and emotion regulation). However, as the experimental design did not include a control condition for relationship type, it remains unclear whether this represents—as the proverb “time is a great healer” implies—a simple fade-out effect. In previous research, social exclusion has been associated with threatened needs even 45–55 minutes after playing Cyberball (Buelow et al., 2015; Zadro et al., 2006). As the average coping time (i.e., the time interval between the $t_1$ and $t_2$ measure) was 339 seconds in this pilot study, detecting detrimental effects following the writing task still seems likely. Nevertheless, a comparison with a non-relational coping condition is needed to support this assumption.

Furthermore, in line with the prevailing conceptualization of parasocial phenomena (Liebers & Schramm, 2019), our pilot study operationalized PSRs/OSRs as positively valenced concepts. However, as recently put forward by Tukachinsky Forster and Click (2023), personae can be disliked for many reasons. For instance, individuals who like a specific character (e.g., Harry Potter) may evoke negative feelings toward their rival (e.g., Lord Voldemort). Some individuals may also perceive negative emotions when unable to avoid specific personae omnipresent in the media landscape (e.g., Taylor Swift). Negative relationships should also be investigated to cover the diversity of media users’ emotional reactions.

Study 1 (S1)
Rationale and overarching aims
The purpose of S1 was twofold: First, we aimed to replicate H1, H2, and RQ1 in an experimental design that includes a non-relational control condition. Building on the findings from our pilot study, the former RQ1 was specified as a hypothesis:

H3: Following an ostracism episode, cognitively activated PSRs and OSRs do not differ with regard to their impact on (a) belongingness and (b) emotional well-being.

Second, S1 aims to investigate whether any form of relational coping—even thinking about negative PSRs—alleviates the pain of social exclusion. In this respect, two different theoretical perspectives emerge: On the one hand, the minimal acknowledgment hypothesis assumes that any form of social contact—even one that is not inherently positive—can effectively cope with social exclusion (Rudert et al., 2017). Supporting this assumption, the study of Rudert et al. (2017) revealed that, compared to receiving no message at all, receiving both a friendly and a hostile message led to significantly more need satisfaction and a better mood after an ostracism episode. On the other hand, the belongingness
The following research question was formulated: 

The contradicting theoretical perspectives described above, restoration dimension of ostracism coping. Thus, referring to instructing ostracized participants to think about their favor series or movies (e.g., Derrick et al., 2009). To our best knowledge, Koban et al. (2018) conducted the only study instructing ostracized participants to think about their favorite or most disliked media figure. Their results demonstrated that positive and negative PSRs positively affected participants’ well-being. Moreover, in direct comparison, their effects did not significantly differ. However, their study (a) did not draw comparisons with an OSR or a non-relational control condition, (b) conceptualized emotion regulation very vaguely, and (c) did not investigate the belongingness need—restoration dimension of ostracism coping. Thus, referring to the contradicting theoretical perspectives described above, the following research question was formulated:

RQ2: To what extent do the cognitive activations of positive and negative relationships differ concerning their impact on (a) belongingness and (b) emotional well-being following an ostracism episode?

Method
Design and manipulation
We applied a 2 (social situation: ostracism vs. inclusion) × 3 (relationship type: PSR vs. OSR vs. control) × 2 (relationship valence: positive vs. negative) between-subjects experiment. The design (Table 2) was unbalanced as this study did not aim to compare the effects of different relationship types and valences for included individuals. We again used Cyberball to manipulate the social situation (Williams & Jarvis, 2006). The instruction to manipulate the type of relationship was extended in two respects: First, the participants in the PSR condition could describe not only a character from a television series but also one from a movie (as many movies, notably movie series such as Harry Potter or Star Wars facilitate forming PSR similar to TV series). Second, to address the limitation of our pilot study, we added a non-relational control condition in which the participants should recall and describe their most recent visit to a supermarket. This condition has been successfully applied in social exclusion research (e.g., Poon et al., 2020; Rieger & Schneider, 2022) and enables more adequate comparisons than instructing participants to write about a time they watched whatever was on television (e.g., Sacco et al., 2021). As an additional factor, the relationship valence was manipulated by instructing the participants to describe a PSR/OSR with either a liked or disliked persona or person, respectively.

Procedure
Data were collected between July 2 and 30, 2021, in Germany. The structure of the questionnaire is identical to that used in the pilot study.

Measures
We used the same attention, technical, and manipulation checks as in the pilot study. Moreover, as an additional suspicion check, we asked participants whether they were already familiar with Cyberball. In this study, belonging was only measured using three items (e.g., “I felt like an outsider”) of the Belonging Subscale of the Need-Threat Scale (Jamieson et al., 2010), showing an acceptable level of reliability (ωt1 = 0.74; ωt2 = 0.85). Emotional well-being was again assessed using the SPANE (Diener et al., 2010), with the positive

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<td>Factor 2: type of relationship</td>
<td>OSR</td>
<td>PSR</td>
</tr>
<tr>
<td>Group 1: being ignored after a few initial ball tosses × describing a real person × positive relationship to the described person</td>
<td>(n = 23)</td>
<td></td>
</tr>
<tr>
<td>Group 2: being ignored after a few initial ball tosses × describing a real person × negative relationship to the described person</td>
<td>(n = 27)</td>
<td></td>
</tr>
<tr>
<td>Group 3: being ignored after a few initial ball tosses × describing a fictional persona × positive relationship to the described persona</td>
<td>(n = 15)</td>
<td></td>
</tr>
<tr>
<td>Group 4: being ignored after a few initial ball tosses × describing a fictional persona × negative relationship to the described persona</td>
<td>(n = 25)</td>
<td></td>
</tr>
<tr>
<td>Group 5: being ignored after a few initial ball tosses × describing the most recent visit to a supermarket</td>
<td>(n = 21)</td>
<td></td>
</tr>
<tr>
<td>Group 6: receiving the ball an equal share of throws × describing the most recent visit to a supermarket</td>
<td>(n = 21)</td>
<td></td>
</tr>
</tbody>
</table>
Results

Participants

Referring to the effect sizes reported in the pilot study, we again targeted a sample size of about 150. As positive (d = 0.42) and negative (d = 0.43) PSRs did not significantly differ in their effects on well-being (Koban et al., 2018), we assumed that the additional coping condition does not increase the required N. The questionnaire was distributed using the same channels as in the pilot study. The raw data (N = 200) were cleaned by applying the following exclusion criteria: Identifying the study’s aim or already knowing Cyberball (n = 34), not showing a satisfying level of engagement when describing a PSR/OSR (n = 8), or reporting technical problems (n = 7). Moreover, we applied a combined criterion of incorrectly answering the attention check question and not understanding Cyberball (n = 3). Furthermore, all participants who mentioned a close person in their description from the last supermarket visit were excluded from the control condition (n = 16). The final sample consisted of 132 participants. On average, participants were 25 years old (SD = 5.24, range = 19–59), most identified as female (66%), and highly educated (54% qualified for university entrance, 26% already graduated from university with a bachelor’s degree).

Results

Data (see OSF folder “data_S1”) were analyzed using the software R (see OSF file “S1.html”). Supporting the success of the social situation manipulation, the estimation of received ball throws significantly differed between the inclusion and the ostracism conditions, χ²(2, 132) = 132, p < .001, Cohen’s w = 1.00. At t₁, ostracized participants were more threatened in belongingness (M = 1.90, SD = 0.80) than included ones (M = 3.65, SD = 1.15), Welch’s t(23.78) = 6.66, p < .001, d = 2.03. Moreover, in contrast to the inclusion condition (M = 7.71, SD = 9.96), being ostracized significantly impaired emotional well-being (M = –6.71, SD = 8.03), Welch’s t(25.16) = 6.27, p < .001, d = 1.73.

Addressing our hypotheses and research question, we performed two-factorial ANOVAs with planned contrasts, including effects of relationship type, relationship valence, and their interaction on each dependent variable’s difference score. Given the incomplete factorial design, ANOVAs could only be calculated for the four ostracism conditions that varied in relationship type and valence. Analyses, including the control conditions, are reported afterward.

For belongingness, neither the main effect of relationship type, F(1, 86) > 0.01, p = .972, η²G < .001, nor the main effect of relationship valence, F(1, 86) = 0.81, p = .371, η²G = .009, nor the interaction, F(1, 86) = 0.92, p = .339, η²G = .011 were significant. On a first glimpse, this seems to support H3a. However, exploratory follow-up comparisons—testing the statistical equivalence⁶ of relationship types across valence (OSR–PSR estimate = 0.01, SE = 0.29, t(86) = -1.12, p = .133)—showed that OSR and PSR are not statistically equivalent. As the main effect of relationship type is neither statistically different from zero nor statistically equivalent, this leads to the inconclusive finding that we do not have enough data and statistical power to draw conclusions regarding H3a. Likewise, the nonsignificant equivalence test for relationship valence across type (neg–pos estimate = -0.26, SE = 0.29, t(86) = -0.26, p = 0.398) renders RQ2a inconclusive.

For emotional well-being, neither the main effect of relationship type, F(1, 86) = 0.10, p = .753, η²G = .001, nor the interaction, F(1, 86) = 0.02, p = .883, η²G < .001 were significant but the main effect of relationship valence was, F(1, 86) = 10.71, p = .002, η²G = .11. Thus, answering RQ2b, positive relationships improved emotional well-being stronger than negative ones, regardless of relationship type. The exploratory follow-up equivalence test for relationship type across valence was not significant (OSR–PSR estimate = 0.75, SE = 2.39, t(86) = -0.89, p = .388), rendering H3b inconclusive.

However, in line with H1a/b and H2a/b, follow-up one-sided one-sample t tests demonstrated that, across valence conditions, belongingness and emotional well-being improved significantly from t₁ to t₉ for PSR (EMMbelongingness = 1.90, SEbelongingness = 0.22, t(86) = 8.79, p < .001, dz = 0.95; EMMwell-being = 13.30, SEwell-being = 1.80, t(86) = 7.39, p < .001, dz = 0.80) and for OSR (EMMbelongingness = 1.91, SEbelongingness = 0.19, t(86) = 10.17, p < .001, dz = 1.10; EMMwell-being = 14.10, SEwell-being = 1.57, t(86) = 8.99, p < .001, dz = 0.97).

Using the planned contrasts of a one-factorial ANOVA, we also investigated whether improved belongingness and emotional well-being in the coping conditions differed from the control conditions (for belongingness: F(5, 126) = 4.30, p = .001, η²G = .15; for well-being: F(5, 126) = 5.47, p < .001, η²G = .18). Surprisingly, follow-up contrasts showed that the coping conditions did not significantly differ from the ostracism control condition regarding improved belongingness across all coping conditions, estimate = –1.60, SE = 1.22, t(126) = –1.31, p = .192, d = –0.23, and improved well-being for the positively valenced coping conditions, estimate = –3.62, SE = 5.96, t(126) = –0.61, p = .543, d = –0.11. Follow-up equivalence tests for the nonsignificant findings (see Footnote 6) showed that differences were not statistically equivalent, neither for belonging: t(126) = 1.04, p = .850, nor for well-being (positively valenced conditions): t(126) = 0.55, p = .710. However, for participants in the negatively valenced coping conditions, well-being improved but less effectively than in the ostracism control condition, estimate = –19.26, SE = 5.63, t(126) = –3.42, p = .001, d = –0.61.

Discussion

In S1, we again found that both belongingness and emotional well-being increased from pre- to post-copying for PSR and HR (H1a/b, H2a/b). Extending our pilot study, this effect was independent of relationship valence. Moreover, S1 allowed a comparison of whether these effects differ from a control condition. However, concerning belongingness restoration, we neither found statistically significant differences between our coping conditions nor support that they are statistically significantly equivalent, thereby rendering the investigation of H3a and RQ2a inconclusive. This was also the
case for the effects of positively valenced relationship types on well-being. Thus, H3b remains inconclusive. The same holds for comparing those coping conditions with a control condition. Reasons for why belongingness in all and well-being in the positively valenced coping conditions did not improve stronger than in the control condition could lie in the nature of the control condition. We elaborate on the appropriateness of control conditions in the General Discussion.

In contrast, thinking about a negative PSR/OSR was significantly less effective for well-being than thinking about a positive relationship (RQ2b) or a supermarket visit. Consequently, concerning well-being, this finding fits the belongingness hypothesis (Baumeister & Leary, 1995). Interestingly, our results showed that its original assumption that negative relationships cannot aid recovery was only supported for well-being but not for belongingness. However, besides the problem of an appropriate control condition, a central limitation of our pilot study and S1 was that our power analyses were only based on the effect sizes for the Cyberball manipulation and did not adequately account for testing equivalence. This is of particular importance for H3. We addressed the problems of the control condition and well-powered null hypothesis and equivalence hypothesis tests in Study 2.

Study 2 (S2)
Rationale and Overarching Aims
Besides replicating our prior findings in a larger sample that allowed well-powered equivalence testing (see preregistration for sample size rationale; https://osf.io/nz67e), S2 aimed to explicate the theoretical mechanism underlying the interplay of thinking about favorite/disliked media characters and coping effectiveness. In line with previous research, our pilot study and S1 were based on the premise that the relationship to personae (e.g., perceived intimacy or closeness) helps individuals overcome episodes of social exclusion. However, as relationship closeness was not explicitly measured, it remains unclear whether the improvement of individuals’ belongingness and emotional well-being can indeed be attributed to the relationship aspect. Addressing this research gap, we formulated the following hypotheses:

H4: Following an ostracism episode, cognitively activating close relationships (i.e., with a person or persona) improves individuals’ (a) belongingness and (b) emotional well-being more than cognitively activating distant relationships (i.e., with a stranger).

H5: Following an ostracism episode, perceived relationship closeness mediates the impact of cognitively activating (para-)social relationships on the improvement of individuals’ (a) belongingness and (b) emotional well-being.

Furthermore, we aimed to investigate the role of relationship valence (i.e., positive versus negative) in this mediating relationship (RQ3a/b).

Method
Design and manipulation
We applied a 3 (relationship type: PSR vs. OSR vs. control) × 2 (relationship valence: positive vs. negative) between-subjects design (see Table 3). In this study, only the ostracism condition of Cyberball (Williams & Jarvis, 2006) was used as we were mainly interested in how effective the different conditions of coping with ostracism are. Moreover, Cyberball produces robust effects (Hartgerink et al., 2015), which also was the case in our pilot study and S1. Additionally, we used a pre-post measure of affect as a proxy for a successful ostracism manipulation (see below). To manipulate relationship type and valence, we adapted the instructions used in S1 as follows (see OSF file “Codebook_S2.pdf”): First, for comparability reasons, we slightly rephrased and further specified that the chosen character “has been with you for some time.” This is relevant as exposure to a media character is positively associated with relationship closeness (Tukachinsky et al., 2020). Second, in the control conditions, the participants were instructed to describe a stranger with whom they either had a pleasant or unpleasant interaction. Changing the non-relational to less-relational control conditions was required to test the mediating role of relationship closeness.

Procedure
Data were collected between September 18 and 20, 2023. The questionnaire structure was—apart from minor adaptations—identical to S1. As ostracism was induced for all participants, we included a brief mood indicator before and after Cyberball. Furthermore, after cognitively activating the respective relationship, we assessed participants’ closeness with this specific person(a). On average, the participants completed the questionnaire in 632 seconds (SD = 163.40). The ethics committee of the Leibniz-Institut für Wissensmedien (IWM) approved the study (LEK 2023/046).

Measures
The dependent variables—belongingness (ωt1 = 0.88, ωt2 = 0.92) and emotional well-being (positive subscale: ωt1 = 0.92, ωt2 = 0.95; negative subscale: ωt1 = 0.86, ωt2 = 0.93)—were measured using the same scales as in our pilot study. The mediating variable was measured using ten items of the Unidimensional Relationship Closeness Scale (URCS; Dibble et al., 2012). As their original wording only fits the OSR (ω = 0.99) and control (ω = 0.95) conditions, three items were slightly reformulated to fit the PSR condition (ω = 0.94). All participants responded to these items on a seven-point agreement scale (for Pearson correlations between the mediating and dependent variables and their [group-specific] descriptives, see Supplementary Appendix C). The Self-Assessment Manakin’s valence, arousal, and dominance dimensions (SAM; Bradley & Lang, 1994) were used as a proxy for successfully inducing feelings of exclusion. In addition to the Cyberball-related technical and attention checks, we assessed whether the participants followed the group-specific instructions concerning the writing task (see OSF file “Codebook_S2.pdf”).

Participants
Using Prolific, we recruited a sample of 1,142 UK residents aged at least 18 years and not suffering from depression. Following our preregistration, we deleted participants who already knew Cyberball (n = 169), reported technical problems while playing the game (n = 10), identified the study’s aim (n = 19), or did not show a satisfying level of engagement when cognitively activating the respective relationship (n = 89). Concerning the last two criteria, two independent coders analyzed participants’ responses in the open text fields
Table 3. Study 2—design; 3 (relationship type: PSR vs. OSR vs. control) × 2 (relationship valence: positive vs. negative) between-subjects design

<table>
<thead>
<tr>
<th>Factor 1: type of relationship</th>
<th>OSR</th>
<th>PSR</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1: being ignored after a few initial ball tosses × describing a real person × positive relationship to the described person</td>
<td>(n = 149)</td>
<td>(n = 849)</td>
<td>(n = 165)</td>
</tr>
<tr>
<td>Group 2: being ignored after a few initial ball tosses × describing a real person × negative relationship to the described person</td>
<td>(n = 135)</td>
<td>(n = 849)</td>
<td>(n = 165)</td>
</tr>
<tr>
<td>Group 3: being ignored after a few initial ball tosses × describing a fictional persona × positive relationship to the described person</td>
<td>(n = 155)</td>
<td>(n = 155)</td>
<td>(n = 155)</td>
</tr>
<tr>
<td>Group 4: being ignored after a few initial ball tosses × describing a fictional persona × negative relationship to the described person</td>
<td>(n = 136)</td>
<td>(n = 136)</td>
<td>(n = 136)</td>
</tr>
<tr>
<td>Group 5: being ignored after a few initial ball tosses × describing a stranger × positive interaction with the described person</td>
<td>(n = 153)</td>
<td>(n = 153)</td>
<td>(n = 153)</td>
</tr>
<tr>
<td>Group 6: being ignored after a few initial ball tosses × describing a stranger × negative interaction with the described person</td>
<td>(n = 127)</td>
<td>(n = 127)</td>
<td>(n = 127)</td>
</tr>
</tbody>
</table>

(i.e., suspicion check and writing task). Corresponding to the preregistered sample size, this led to a final sample of 855 participants. On average, they were 43 years old (SD = 13.59, range = 18–79), equally distributed in their gender identity (52% female), and highly educated (62% graduated from university or college).

Results

Data (see OSF folder “data_S2”) were analyzed using the software R (see OSF file “S2.html”). Supporting the successful ostracism induction, a MANOVA of SAM (Pillai’s Trace = 0.41) showed that pre- and post-measures differed significantly regarding perceived valence, F(1, 854) = 667.34, p < .001, ηp² = .19, arousal, F(1, 854) = 405.86, p < .001, ηp² = .26, and dominance, F(1, 854) = 421.12, p < .001, ηp² = .12. Following Cyberball, participants felt more unhappy (M0 = 2.18, SD0 = 0.76; M1 = 3.03, SD1 = 0.97), less calm (M0 = 3.55, SD0 = 0.83; M1 = 2.53, SD1 = 0.98), and less powerful (M0 = 3.20, SD0 = 0.77; M1 = 2.56, SD1 = 0.96), respectively.

As preregistered, we calculated difference scores—post-coping (t2) minus pre-coping (t1)—for belongingness and emotional well-being. Whereas positive difference scores indicate an improvement (see the hypotheses’ wording), negative ones indicate an impairment. For testing H1, H2, H3, H4, and RQ2, we ran two-factorial relationship type (OSR, PSR, control) × relationship valence (positive, negative) ANOVAs on each difference score. Moreover, we used the difference scores in the mediation models in H5 and RQ3.9

For belongingness, ANOVAs revealed significant main effects of relationship type, F(2, 849) = 7.18, p < .001, ηp² = .02, and valence, F(1, 849) = 31.79, p < .001, ηp² = .04—but no significant interaction effect, F(2, 849) = 2.02, p = .134, ηp² = .01. We found the same pattern for emotional well-being: The main effects of relationship type, F(2, 849) = 4.64, p = .010, ηp² = .01, and valence, F(1, 849) = 49.62, p < .001, ηp² = .06 were significant. However, their interaction term yielded no significance, F(2, 849) = 1.01, p = .363, ηp² < .01.

Addressing RQ2a/b (i.e., the impact of relationship valence on the improvement of both dependent variables), the significant main effects reported above showed that cognitively activating positive relationships improved belongingness (EMMpos = 2.76, SE = 0.07; EMMneg = 2.20, SE = 0.07) and emotional well-being (EMMpos = 17.54, SE = 0.50; EMMneg = 12.34, SE = 0.54) significantly stronger than negative ones. However, for both positive and negative relationships, belongingness (pos: t(849) = 41.12, p < .001, dz = 1.41; neg: t(849) = 30.65, p < .001, dz = 1.05) and emotional well-being (pos: t(849) = 34.79, p < .001, dz = 1.19; neg: t(849) = 22.82, p < .001, dz = 0.78) improved significantly from t1 to t2.

In line with H1, follow-up one-sided one-sample t tests (across relationship valence) showed significant improvements from t1 to t2 for (a) belongingness (EMM = 2.57, SE = 0.08, t(849) = 30.50, p < .001, dz = 1.05) and (b) emotional well-being (EMM = 16.02, SE = 0.63, t(849) = 25.30, p < .001, dz = 0.87) in the PSR condition. Supporting H2, (a) belongingness (EMM = 2.65, SE = 0.09, t(849) = 31.15, p < .001, dz = 1.07) and (b) emotional well-being (EMM = 15.43, SE = 0.64, t(849) = 24.08, p < .001, dz = 0.83) also significantly improved in the OSR condition.

However, these significant improvements were also found in the control condition (EMMbelongingness = 2.22, SEbelongingness = 0.09, t(849) = 25.80, p < .001, dz = 0.81; EMMwell-being = 13.38, SEwell-being = 0.65, t(849) = 20.68, p < .001, dz = 0.71).

Equivalent tests were performed to test whether the PSR and OSR conditions did not differ in their impact on improving belongingness (H3a) and emotional well-being (H3b). More concretely, based on our preregistered eqb of δl = −0.25 and δu = 0.25 (resembling a small effect of Cohen’s d = 0.25), we calculated two one-sided independent t tests as follow-up contrasts (Lakens et al., 2018)—across relationship valence—using the respective raw mean difference (i.e., belongingness = 0.37, emotional well-being = 2.80) as delta (for details on the SESOI and eqb, see preregistration on OSF). As hypothesized, differences were statistically equivalent for belonging, OSR-PSR estimate = 0.08, SE = 0.12, t(849) = −2.34, p = .010, and emotional well-being, OSR-PSR estimate = −0.60, SE = 0.90, t(849) = −2.45, p = .007.

Contrast analyses were performed to analyze whether cognitively activating close relationships—PSR (1) and OSR (1)—leads to a significantly higher improvement of both dependent variables compared to the control condition (−2).
Across relationship valence, we found significant differences in the postulated direction for belongingness (EMM = 0.78, SE = 0.21, t(849) = 3.73, p < .001, d = 0.26) and emotional well-being (EMM = 4.68, SE = 1.58, t(849) = 2.97, p = .003, d = 0.20), thereby supporting H4a/b.

Figure 1 shows the path diagram of the moderated mediation model for testing H5a/b and RQ3a/b. We ran the model and estimated indirect effects with Monte Carlo simulations (20,000 repetitions) using the R packages lavaan (Rosseel, 2012) and semTools (Jorgensen et al., 2022). Including relationship closeness as a mediator of the effects of relationship type and valence on belongingness and emotional well-being rendered the main effects of relationship type nonsignificant, whereas indirect paths were significant (see Table 4), indicating a fully mediated effect and supporting H5a/b.

Investigating whether these mediations were conditioned on relationship valence (RQ3a/b) also showed significant moderated indirect paths (see Table 4). The effects of relationship type on improved belongingness and emotional well-being mediated via relationship closeness were more pronounced when cognitively activating positive than negative relationships.10

Discussion

These findings extend our previous experiments in several respects: First, the equivalence tests demonstrated that thinking about PSRs had the same positive effects as thinking about OSRs. This highlights parasocial phenomena' relevance as more than a secondary or inferior replacement. Second, cognitively activating these relationship types was significantly more effective in achieving both coping goals than cognitively activating distant relationships. Consequently, using adequate control conditions, S2 revealed that coping using intensely relational thoughts exceeds time spent with weakly relational thoughts. However, despite being less effective than thinking about a close person(a), it is noteworthy that even participants in this control condition improved (see General Discussion for possible theoretical explanations). Third, S2 is among the first studies explicating the central theoretical mechanism contributing to effective coping. More concretely, it supported the general premise that—when thinking about a (dis)liked media character—relational aspects (e.g., the perceived intimacy/closeness to this persona) help individuals overcome episodes of social exclusion.

General discussion

To what extent does cognitively activating PSRs versus OSRs serve as a first aid for socially excluded individuals to restore their belongingness and emotional well-being? In line with the TNTM (Williams, 2009) and a large body of research (e.g., de Gennaro et al., 2020; Hartgerink et al., 2015; Lutz & Schneider, 2021), results showed that being socially excluded had detrimental consequences on these outcomes. Thus, investigating the (potentially) different effects of indirect coping strategies is highly relevant. Based on the assumption that OSRs and PSRs can similarly be conceived as mental representations of relationships and associated concepts such as closeness (Baldwin, 1992), research has shown that activating these so-called symbolic social bonds (Gabriel et al., 2016; Paravati et al., 2021) may benefit the recovery process after social exclusion. In line with these ideas, and concluding from the results of all three studies, cognitively activated OSRs and PSRs equally effectively improved belongingness and emotional well-being. Especially the adequately powered equivalence tests in S2 and comparison to a less-relational control condition empirically substantiated Gabriel et al.’s (2016) criticism of the term “social surrogate,” meaning that thinking about one-sided relationships with media personae had indeed similar coping potential as thinking about reciprocal relationships with close persons.

In S2 (and partially in S1—which will not be further discussed given its limited statistical power), we found that coping effectiveness largely depended on relationship valence. In direct comparison, thinking about negative relationships was less effective in reaching both coping goals than thinking about positive ones. This might be explained through specific
psychological processes underlying the cognitive activation of disliked media characters. Following *affective disposition theory* (Raney, 2004; Zillmann, 1996), negative feelings toward media characters trigger emotional responses such as counter-empathy or grief. As they somewhat overlap with the negative dimension of emotional well-being—operationalized with items such as “unpleasant” or “angry” (Diener et al., 2010)—it seems plausible that this specific coping strategy is less effective than thinking about liked characters. Furthermore, most descriptions of disliked personae imply thoughts about media content with a negative hedonic valence. For instance, when describing that “Lord Voldemort finds pleasure in the killing and suffering of others,” one participant probably had specific negatively valenced scenes in mind (e.g., the death of the main character’s parents). As suggested by *mood management theory* (Zillmann, 1988), such unpleasant media content is less effective in restoring positive affective states and thus enhancing emotional well-being.

Importantly, these theoretical arguments directly compare positive- versus negative-valenced relationships (i.e., between-subjects effect). In terms of differences between both measurement times (i.e., within-subjects effect), even the cognitive activation of negative relationships helped individuals overcome social exclusion episodes. This represents an important theoretical contribution as it starkly contrasts previous assumptions. For instance, indirect cognitive coping strategies (e.g., daydreaming about *loved* ones or thinking about *liked* personae) referred initially to positive relationships exclusively (Gardner et al., 2005), and negative relationships were not supposed to satisfy belongingness (e.g., Baumeister & Leary, 1995). The belongingness need-restoring effect of cognitively activating negative relationships may be explained by the *narrative collective-assimilation hypothesis*: Following Gabriel and Young (2011), narratives have the potential to fulfill belongingness needs as individuals can psychologically become members of the group described within the books or movies. Thus, when being instructed to describe a disliked persona, individuals may cognitively activate the narrative as a whole (including liked personae). Such assumptions align with the idea that social relationships are mentally represented (Baldwin, 1992) and can be strongly associated with other mental concepts (of the narrative world), such as social groups or closeness. However, all the processes mentioned above—negative affective disposition, negative hedonic valence, and narrative collective assimilation—have only been tested when exposing oneself to media content (e.g., watching a movie or reading a book). Thus, future research must investigate their role when thinking about personae, especially following an ostracism episode.

Furthermore, we advise researchers to carefully reflect on the instructions being used in the control conditions. In S1, the non-relational writing task (i.e., describing the last supermarket visit) often led participants to simply list the products they bought. Some even described this experience’s non-relational nature (e.g., “Nobody paid attention to each other”). However, as mentioned in S1’s method section, we had to delete some cases mentioning close persons in their descriptions (e.g., shopping with or buying things for friends and family members). Thus, other instructions—such as solving a mathematical task (Stein et al., 2022) or listing objects in the personal appartement (Derrick et al., 2009)—might have been more appropriate. Nevertheless, referring to Riva (2016), even these tasks represent coping efforts—so-called cognitive avoidance strategies, defined as “an active effort to avoid thinking about the source of social exclusion ... by
engaging in thoughts focused on objects unrelated to the hurtful event” (p. 201). Moreover, finding an adequate control condition is hardly possible because “not coping” cannot be easily operationalized. Although participants can be instructed not to perform any coping behaviors, their cognitive coping processes (e.g., cognitively re-appraising the exclusion situation; Timeo et al., 2019) can hardly be suppressed. Thus, drawing empirically valid claims concerning whether turning to personae exceeds the mere time effect (i.e., when not coping) is difficult. Future research can contribute to this field by testing PSR coping compared to slightly different variations of control groups (e.g., using active control groups that apply various coping techniques such as focused attention, which usually do not foster belongingness restoration to the same extent as cognitive activation of close relationships). However, such control conditions must be designed carefully, as their effectiveness could depend on the outcomes. For instance, when participants in a control condition only focus on thoughts and feelings of the present moment (i.e., focused attention), they pursue a specific mindfulness intervention strategy (Timeo et al., 2019). Some studies have found that OSRs/PSRs instructions improved belongingness need restoration when comparing them against such focused attention conditions but not affective states (e.g., Timeo et al., 2020). Another way could be to select maladaptive (i.e., ineffective) coping strategies. For instance, rumination (e.g., “write down what you’re thinking about what happened during the Cyberball game”) has shown less recovery in belongingness need compared to a distraction task (Wesselmann et al., 2013), thereby representing an interesting control condition, although its effect on emotional well-being has not been examined yet. As Timeo et al. (2019) point out, little is still known about the underlying mechanisms of many strategies to cope with social exclusion and how to teach and apply them. By instructing participants in the control condition to think about less close relationships, S2 serves as an essential first step in this respect. Although the participants in this condition also recovered from the ostracism experience, they improved less than those in the PSR or OSR conditions. Moreover, such control conditions allow for measuring the underlying mechanisms in more detail. As perceived relationship closeness fully mediated the effect of cognitively activating PSR/OSR on both coping goals, S2 indicated that coping effectiveness can be attributed to relational aspects. This would be impossible without an adequate object of reference (i.e., a control condition that does not involve thoughts about a specific person(a); see S1). Comparing the effects of an ostracism control condition on belongingness need restoration and emotional well-being against those of OSR and PSR conditions was essential to address this article’s research goal. This is particularly true when researchers employ established methods of social exclusion, such as Cyberball, which results in robust effects. Nevertheless, adding one or more inclusion control conditions could help expand the present research by, for instance, examining whether OSRs and PSRs could also contribute to the state of belongingness and emotional well-being of already included participants, scrutinizing the role of (extended) recovery time, or applying alternative experimental paradigms.

Even though most results were in line with the hypotheses, central limitations must be considered. Furthermore, all three studies relied on self-report measures and followed a dimensional approach to conceptualize emotional well-being (i.e., positive versus negative). Importantly, communication research can benefit from examining different discrete emotions (i.e., anger, desire, anxiety, sadness, and happiness) more closely (Nabi, 2010). Given the variety of emotional responses media users experience toward (dis)liked media personae (Raney, 2004), using this approach in future research may uncover subtle emotional consequences of PSR coping. As another limitation, all three studies only tested specific components of the TNTM (Williams, 2009). Building on theoretical arguments (e.g., Baumeister & Leary, 1995), the need-restoring effect was only examined for individuals’ need to belong. However, as ostracism can also threaten self-esteem, control, and meaningful existence, investigating the coping potential of PSRs in restoring these needs is relevant as well. Another possible direction for future research could be to explore the coping effects after longer ostracism episodes. Our finding that both strategies are equally effective in belongingness need restoration and emotion regulation only refers to a single ostracism episode that lasted approximately three minutes. Interestingly, following more intense forms of exclusion (e.g., knowing that you will likely end up alone later in life), cognitively activating PSRs was ineffective in regulating emotions (Twenge et al., 2007). Thus, experimentally manipulating the length or severity of social exclusion seems a promising step for future research. In this respect, comparing indirect (i.e., activating symbolic social bonds) and direct (e.g., engaging in computer-mediated communication with others; Hall et al., 2023) strategies of social re-connection might also be interesting as the former has been identified as a temporary means of first aid (Schneider et al., 2023), but was postulated as being less effective in the long term (Gardner et al., 2005). Future research endeavors should also account for psychological variations across the lifespan, gender, and culture. Furthermore, whereas the experimental design allows causal claims due to its high internal validity, manipulating social situations lacks external validity. Hence, the presented findings should be replicated in a less artificial setting, for instance, by conducting an experience sampling diary study.

Despite these limitations, this article is among the first to investigate the effects of PSR coping—compared to OSR, non-relational, and less-relational coping—for different relationship valences. Our findings support that PSRs are not restricted to friendly encounters with liked media characters (for a discussion, see Tukachinsky Forster & Click, 2023). Although non-amicable relationships have been argued to involve negative emotions (e.g., discomfort, dislike, and animosity), their cognitive activation can still represent a beneficial coping strategy for socially excluded individuals (see S2). This not only advances our conceptual understanding of PSRs but also provides a starting point for further studies. For instance, by investigating how cognitively activating different forms of non-amicable relationships can serve as a coping strategy for socially excluded individuals, future research can move beyond the positive-negative dichotomization of PSRs (Tukachinsky Forster & Click, 2023).

In addition, although our results showed very similar effects of positive (and negative) OSRs/PSRs on belongingness and emotional well-being, and both outcomes were highly correlated, we think it is essential to look at belongingness and emotional well-being as two distinct constructs (e.g., Martela & Sheldon, 2019). Previous research found inconsistent patterns (e.g., Koban et al., 2018; Stein et al., 2022;
Timeo et al., 2020), perhaps due to different samples, manipulations of social exclusion, instructed coping strategies and control conditions, measures, personae, and power of the statistical tests. Thus, further steps are necessary to illuminate the theoretical and methodological reasons for the inconsistent findings.

Furthermore, the present manuscript addresses a theoretical gap in social exclusion coping. Although the social surrogacy hypothesis (Derrick et al., 2009) posits that personae represent powerful coping resources, it does not further specify the mechanisms underlying this effect. We conceptualized relationship closeness as a mediating variable based on theorizing on symbolic social bonds (Gabriel et al., 2016) and mental representation of social relationships (Baldwin, 1992). Using specific instructions, especially S2 corroborated the mediating assumption and revealed that the effectiveness of cognitively activating PSR can be attributed to relational aspects (i.e., the perceived intimacy/closeness to the respective persona).

The multi-study approach helped consecutively refine the conceptual (i.e., valence and underlying process) and methodological (i.e., power, equivalence testing, and control group) ideas. As a key contribution, it transferred the social-psychological phenomenon of ostracism to the field of communication. By highlighting that media personae are more than a secondary replacement when recovering from ostracism, the present findings enable a more nuanced understanding of how media applications can be used as instruments to achieve specific coping goals (i.e., coping tools; Wolters & Schneider, 2021).

**Open science framework badges**
- **Components** The components of the research methodology needed to reproduce the reported procedure and analysis are publicly available for this article.
- **Open Data** Digitally shareable data necessary to reproduce the reported results are publicly available for this article.
- **Preregistered** Research design was preregistered.

**Notes**
1. In the following sections, we will only present the results concerning this research question. Interested readers can find a test of H1 and H2 in the Supplementary Appendix.
2. As some of the items in both scales are relatively similar, only one version was used (e.g., “I felt like an outsider.”). Moreover, items were dropped that refer to the avatars in Cyberball (e.g., “I feel the other players interacted with me a lot.”) or to specific situations (e.g., “Because I don’t belong, I feel distant during the holiday season.”) not relevant to the posttest or the present study, respectively.
3. We deviated from our preregistered analyses in our pilot study: We ran all analyses on difference scores instead of including a within-factor in repeated-measures ANOVA. Although both approaches are mathematically equivalent, the former is more in line with how the hypotheses were worded and easier to compare across the studies. Moreover, it is easier and more comprehensible to define the smallest effect sizes of interest based on the difference scores. The difference score approach was preregistered in Study 2.
4. All studies used the R packages `afex` (Singmann et al., 2023) and `emmeans` (Lenth, 2023) for ANOVAs and follow-up t-tests of planned contrasts, respectively.
5. Unfortunately, due to technical problems, these methodological modifications have not been appropriately preregistered.
6. We did not preregister the smallest effect size of interest (SES0I) and respective equivalence bounds (eqb) for S1. Thanks to recommendations by the editor and the anonymous reviewers, we preregistered our eqb based on a standardized effect size of $d = 0.25$ for a given sample size in S2. Here, we use this eqb, highlighting that this is still a post hoc data exploration.
7. An anonymous reviewer was concerned that belongingness and emotional well-being were strongly related and thus may be subsumed under an overall well-being construct. As outlined in our theory section, there is theoretical and empirical support that these are related but distinct constructs, and our additional analyses (see S2_CFA.t2.html on OSF) indicated discriminant validity.
8. Before data collection, we did not know whether the (modified) URCS represents a valid and reliable measure to assess different relationship types and valences. Although it has been applied to measure relationship closeness with a persona before (Dibble et al., 2016), we were unaware of studies applying it to negative-valenced relationships. Thus, as a backup plan, we preregistered two additional instruments—the Positive-Negative Relationship Quality (PN-RQ) scale (Rogge et al., 2017) and the Inclusion of Other in the Self (IOS) scale (Aron et al., 1992). Given the high McDonald’s Omega, we used the URCS. Preregistered exploratory analyses showed that all closeness measures were highly correlated, except for the negative dimension of the PN-RQ. Additional exploratory mediation analyses showed that the pattern of the results was the same. For details, see OSF file “S2.html.”
9. Exploratory analyses revealed that coping time ($M = 195.25, SD = 162.91$) correlated weakly but significantly with belongingness ($r = .09, p = .009$) and measures of relationship closeness. Thus, additionally, we ran all models controlling for coping time. However, the interpretation of the results was not changed (see OSF file “S3.html”).
10. Including coping time as a second mediator only slightly affected the results but did not alter the interpretation of the significance tests (see Supplementary Appendix Table C3).

**Supplementary material**
Supplementary material is available at Human Communication Research online.

**Data availability**
All files referred to in this article are available on the Open Science Framework (OSF; https://osf.io/a3xwv/).

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**Conflicts of interest**
The authors declare no conflicts of interest.

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**References**


