Understanding Prosocial and Antisocial Behaviours: The Roles of Self-Focused and Other-Focused Motivational Orientations

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Abstract

We examine how individual differences in self-focused and other-focused orientations relate to prosocial (e.g., helping, volunteerism) and antisocial (e.g., theft, violence) behaviours/attitudes. Using four datasets (total $N = 176, 216$; across 78 countries), we find that other-focused orientations (e.g., socially focused values, intimacy motivation, compassionate/communal traits) generally relate positively to prosocial outcomes and negatively to antisocial outcomes. These effects are highly consistent cross-nationally and across multiple ways of operationalizing constructs. In contrast, self-focused orientations (e.g., personally focused values, power motivation, assertive/agentic traits) tend to relate positively to both antisocial and prosocial outcomes. However, associations to prosocial outcomes vary substantially across nations and construct operationalizations. Overall, the effects of other-focused orientations are consistently larger than those of self-focused orientations. We discuss the implications of these findings for interventions that target self-focused and other-focused motivations to influence prosocial and antisocial outcomes.

Keywords: (1) Prosocial Behaviour; (2) Antisocial Behaviour and Aggression; (3) Self-Focused Orientations; (4) Other-Focused Orientations; (5) Egoistic and Altruistic Motivations; (6) Interpersonal Circumplex

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Focused Motivational Orientations

1. Introduction

Fundamental to the concerns of many social scientists are behaviours that benefit others

(i.e., *prosocial behaviours*; Batson & Powell, 2003; Schroeder & Graziano, 2015) and

behaviours that harm others (i.e., *antisocial behaviours*; DeWall et al., 2012). Although

researchers often consider overlapping causes for prosocial and antisocial behaviours, the

literatures on these two types of behaviours have largely operated in isolation from each other.

This makes it difficult to determine how variables simultaneously affect both kinds of

behaviours. This is an important concern, both theoretically and practically. For example, having

observed that social inhibitions impede prosocial acts (e.g., Guo et al., 2018), an interventionist

may apply these findings to teach people to overcome their inhibitions. However, lowered

inhibitions may also promote antisocial behaviours (Hirsh et al., 2011). Thus, such an

intervention may increase prosocial behaviours (as intended) but also have the unintended

consequence of increasing antisocial behaviours.

To address the dynamics of prosocial and antisocial behaviours within a common

theoretical framework, we examine the role of two broad types of motivational variables thought

to underlie much interpersonal behaviour: *self-focused orientations*, which focus on obtaining

outcomes for oneself, and *other-focused orientations*, which focus on building/maintaining

relationships and achieving outcomes for others. In developing this framework, we begin by

defining each variable and describe how self- and other-focused orientations can each promote

and inhibit prosocial and antisocial behaviours. We then argue that the associations between the

four variables at a global level should operate in a more generalizable way and present four

studies to quantify the general associations between the variables.

1.1. Defining Prosocial and Antisocial Behaviours

Prosocial behaviours are acts that have positive or beneficial outcomes for others (Dovidio et al., 2006; Eisenberg & Miller, 1987; Snyder & Dwyer, 2012), and *antisocial behaviours* are acts that have negative or harmful outcomes for others (Bandura, 1978; Buss, 1961; Loeber & Hay, 1997). Both types of behaviours can take many forms.

Prosocial behaviours can be planned or spontaneous (e.g., looking after a person's pet in their absence vs. spontaneously helping a stranger; Amato, 1990; Latané & Darley, 1968), have direct or indirect benefits for others (e.g., giving money to the homeless vs. engaging in pro-environmental behaviours; De Groot & Steg, 2009; Rushton et al., 1981), be informal or formal (e.g., comforting a friend vs. formal volunteerism; Omoto & Snyder, 1995; Walker et al., 1995), and enacted with or without deliberate intentions (e.g., donating blood vs. recycling out of habit; Kurz et al., 2014; Ouellette & Wood, 1998; Verplanken & Aarts, 1999).

Antisocial behaviours can similarly be planned or spontaneous (e.g., playing a debasing prank on someone vs. hitting someone after being insulted; Kempes et al., 2005), direct or indirect (e.g., physically hitting someone vs. spreading rumours; Card et al., 2008), legal or illegal (e.g., acting rudely vs. stealing something; Anderson, 1987; Porath & Erez, 2007), and active or passive (e.g., lying to someone vs. withholding information from someone; Buller & Burgoon, 1996; Connelly et al., 2012). Many antisocial acts are forms of *aggression,* which involves explicit intention to harm another (Anderson & Bushman, 2002; DeWall et al., 2012). However, antisocial behaviours can also occur without explicit intentions, such as through reflexive acts (e.g., automatically engaging in harmful acts without realizing it; Todorov & Bargh, 2002) and antisocial negligence (e.g., harming others due to a *lack* of regard for them,

rather than intending to; Albert & Thilagavathy, 2013; Mills et al., 2004; Swanson et al., 1994).

Table 1.
Definitions of Prosocial and Antisocial Behaviours

Concept	Definition	Examples
Prosocial Behaviours	Behaviours which increase positive/beneficial (or decrease negative/harmful) outcomes for others. Outcomes can be material, physical, psychological, tangible, or intangible. Prosocial behaviours generally include acts that are supportive of others' goals, wants, or needs.	- Emotional support - Volunteerism - Donating blood/organs - Donating to charities - Doing favours for others
Antisocial Behaviours	Behaviours which increase negative/harmful (or decrease positive/beneficial) outcomes for others. Outcomes can be material, physical, psychological, tangible, or intangible. Antisocial behaviours generally include acts that are against (or interfere with) others' goals, wants, or needs.	- Physical violence - Verbal/social aggression - Theft - Sabotaging other's work - Damaging other's property

Table 1 provides elaborated definitions for prosocial and antisocial behaviours that capture the breadth of examples we have given. Although prosocial and antisocial behaviours have sometimes been discussed as conceptual opposites (Batson, 1998; Gomà-i-Freixanet, 1995; Krueger et al., 2001; Wispé, 1972) we define them separately as evidence indicates they should be treated as distinct behavioural dimensions. For instance, factor analytic work supports that prosocial and antisocial behaviours are distinct (Harris et al., 1996; Krueger et al., 2001), and the typical association between these behaviours has neither been large (e.g., Eron & Huesmann, 1984; Dalal, 2005), nor consistent (sometimes even positive: Card et al., 2008; Duncan et al., 2002). Moreover, certain behaviours have both prosocial and antisocial elements (e.g., extreme political activism can help one group while harming another; Long & Burke, 2015). Accordingly, our definitions ensure that the core features of each behaviour (e.g., prosocial behaviours providing benefits to someone) do not preclude features of the other (e.g., bringing harm to others), allowing any given behaviour to be conceived along both dimensions. However,

we acknowledge that other definitions exist (e.g., DeWall et al., 2012; Eisenberg & Miller, 1987), and the Appendix provides further considerations that informed our definitions.

1.2. Exploring the Common and Distinct Etiologies of Prosocial and Antisocial Behaviours

Because prosocial and antisocial behaviours are distinct dimensions, variables that predict them can follow several patterns of associations, each with unique practical implications.

First, some variables predict prosocial behaviours, but not antisocial behaviours. For example, extraversion appears to positively predict volunteerism (Carlo et al., 2005) but to be largely unrelated to antisocial behaviours (Jones et al., 2011; Miller & Lynam, 2001). Targeting such variables (e.g., creating situations to elicit extraverted states; Fleeson et al., 2002; Rauthmann et al., 2014) could be useful to obtain desired effects of increasing prosocial behaviours, while being safe to avoid undesired consequences (increasing antisocial behaviours).

Second, some variables predict antisocial behaviours, but have negligible associations with prosocial behaviours. For instance, anger and negative affectivity are well-known predictors of aggression (DeWall et al., 2012; Hershcovis et al., 2007), but have much weaker associations with prosocial behaviours (e.g., Krueger et al., 2001; Organ & Ryan, 1995). Such variables could also generally be useful and safe targets—this time to decrease antisocial behaviours.

Third, some variables predict prosocial and antisocial behaviours in *opposite* directions. For example, self-control, empathy, and agreeableness are typically positively related to prosocial behaviours (DeWall et al., 2008; Eisenberg & Miller, 1987; Habashi et al., 2016), but negatively related to antisocial behaviours (Denson et al., 2012; Jolliffe & Farrington, 2004; Vize et al., 2018). Such variables represent ideal targets for interventions by simultaneously increasing prosocial behaviours and decreasing antisocial behaviours.

Fourth, some variables predict prosocial and antisocial behaviours in the *same* direction.

For instance, disinhibition can increase both prosocial and antisocial behaviours (Guo et al., 2018; Hirsh et al., 2011), and so can threats to self-evaluations (Felson, 1978; Griskevicius et al., 2010; McAndrew, 2002). Although targeting such variables can have benefits, it can also lead to undesirable effects. For instance, an intervention that increases prosocial behaviours by reducing social inhibitions could inadvertently increase antisocial acts.

Given the above, the current project aims to examine which patterns best capture two variables that have long been proposed as key predictors of social behaviours: self- and other-focused orientations.

1.3. Self-Focused and Other-Focused Orientations: A Dominant Division of Motivational Orientations in Psychology

One of the most common distinctions made in theories of personality and motivation is that between self- and other-focused orientations. Broadly, *self-focused orientations* are a class of variables that reflect dispositions to seek beneficial outcomes for oneself, whereas *other-focused orientations* are a class of variables that reflect dispositions to seek beneficial outcomes for others and/or to build and maintain social relationships (see Table 2 for more specific definitions; for similar definitions see also: Abele & Wojciszke, 2007; Miyamoto et al., 2018). This fundamental dichotomy can be found in diverse frameworks on personality traits, motivations, goals, needs, and values. Notable frameworks include: the Interpersonal Circumplex tradition, which distinguishes between the dimensions of *agency* vs. *communion* (Abele & Wojciszke, 2007; Trapnell & Wiggins, 1990), frameworks of human values that distinguish between *personal/individual focus values* vs. *social/collective focus values* (Mueller & Wornhoff, 1990; Schwartz et al., 2012b), models of cultural differences that distinguish between *individualistic/independent* vs. *collectivistic/interdependent* orientations (Hui & Triandis, 1986;

Markus & Kitayama, 1991), and more (e.g., Abele & Wojciszke, 2014; Chulef et al., 2001; De

Dreu & Nauta, 2009; Gerbasi & Prentice, 2013; Wicker et al., 1984). Table 2 provides and

defines six frameworks representative of this dichotomy that we examine in our studies.

Table 2.
Definitions and Synthesis of Self-Focused and Other-Focused Orientations

Core Definitions for Self-Focused and Other-Focused Orientations
Self-Focused Orientations: Orientations describing the degree to which a person focuses on, pays attention to, and seeks out outcomes that benefit them personally, or seeks to increase their own personal agency/control over such personal outcomes.
Other-Focused Orientations: Orientations describing the degree to which a person focuses on, pays attention to, and seeks out outcomes for the benefit of others, to build and maintain relationships with others, or to support others' goals/wants.
Example Frameworks Distinguishing Self-Focused and Other-Focused Orientations
1. Interpersonal Circumplex: A widely used framework for organizing interpersonal space (covering elements such as people's behaviours, traits, goals, motivations, values, needs) according to two central dimensions.
a. Agency: Interpersonal dimension concerned with differentiating and promoting outcomes for the self through themes such as power and mastery. The dimension of agency is sometimes referred to using other labels such as dominance and assertiveness.
b. Communion: Interpersonal dimension concerned with creating and maintaining connections with others, such as through agreeable and caring behaviours. The dimension of communion is sometimes referred to using other labels such as nurturance, affiliation, and warmth.
References: Abele & Wojciszke, 2007; 2014; Bakan, 1966; Freedman et al., 1951; Gurtman, 2009; Hiller & Philiber, 1985; Leary, 1957; Leonard, 1997; Locke, 2000; Trapnell & Wiggins, 1990; Wiggins, 1996; Wiggins & Holzmuller, 1981.
2. Schwartz' Theory of Basic Human Values: An influential framework for understanding human values. Distinguishes between 19 values, which are organized along a circular continuum is defined by the presence of higher order values. At the highest level, each value can be organized according to whether it has a social focus or personal focus.
a. Personal Focus Values: Values that concern outcomes for the self. Subsumes *self-enhancement values*, which focus on directly pursuing one's own interests, and *openness to change values*, which focus on gaining exposure to new experiences, ideas, and skills.
b. Social Focus Values: Values that concern outcomes for others and for how one relates to others. Subsumes *self-transcendence values*, which focus on concerns for the welfare of others, and *conservation values*, which focus on maintaining social order and avoiding social disruption/change.
References: Rudnev et al., 2018; Schwartz, 1994a; 2012; Schwartz et al., 2012b; Schwartz & Boehnke, 2004.
3. Masculinity and femininity (as captured in scales like the BSRI)**:** Personality traits perceived as differentially desirable for men and women.[1] Distinction between the two trait dimensions draws heavily from the two axes of the interpersonal circumplex.
a. Masculinity: A general orientation tied to themes of instrumentality, assertiveness, power,

and independence.

b. *Femininity*: A general orientation tied to themes of expressiveness, nurturance, and communality, along with a general concern for others.

References: Bakan, 1966; Bem, 1974; Bem et al., 1976; Heilbrun & Bailey, 1986; Lippa, 2001; Wood & Eagly, 2015.

4. Independent vs. Interdependent Self-Construal: Individual differences in how people construe their sense of self, along with their relationship to the world around them. Frequently understood as an individual-level manifestation of group-based differences in individualistic/collectivistic cultural values.

a. *Independent Self-Construal*: Degree to which people construe their sense of self as highly individualized and independent from others. People high in independent self-construal value independence and act in ways to express/strengthen it. Tied to constructs such as individualism, egocentrism, and idiocentrism.

b. *Interdependent Self-Construal*: Degree to which people construe their sense of self as interconnected with others around them. People high in interdependent self-construal value relationship maintenance and acting in accordance to established norms. Tied to constructs such as collectivism, sociocentrism, and allocentrism

References: Hofstede, 1980; 2011; Hui & Triandis, 1986; Kitayama et al., 2019; Markus & Kitayama, 1991; Singelis, 1994; Triandis, 1995; 2001.

5. Self- and Other-Interest: Individual difference measure of the extent to which people are motivated to act in their own self-interest, or in the interest of others.

a. *Self-Interest*: Orientation towards the pursuit of personal gains in socially valued domains such as achieving social status/power, happiness, and occupational success.

b. *Other-Interest*: Orientation towards the pursuit of gains for others in socially valued domains (e.g., social status/power, happiness, and occupational success).

References: Gerbasi, 2011; Gerbasi & Prentice, 2013.

6. Power and Achievement vs. Affiliation and Intimacy Motives: Four highly studied motivational dimensions tied to basic psychological needs. Frequently discussed in relation to the interpersonal circumplex and captured by similar values in Schwartz's model.

a. *Power and Achievement*: *Power* is the motive for having personal influence over others, along with personal success and status, whereas *achievement* is the motive for learning and mastering tasks, along with achieving excellent work.

b. *Affiliation and Intimacy*: *Affiliation* is the motive for building and maintaining friendly relationships with others in general, whereas *intimacy* is the motive for forming profound relationships with close others and engaging in behaviours such as self-disclosures and meaningful mutual exchange.

References: Brunstein et al., 1998; Heckhausen & Heckhausen, 2008; Mansfield & McAdams, 1996; McAdams & Constantian, 1983; Schönbrodt & Gerstenberg, 2012; Sokolowski, 2008; Sokolowski et al., 2000; Winter, 1991; Winter et al., 1998.

[1]Although masculinity/femininity continue to correspond closely to the agency/communion distinction, the usefulness of the dimensions to represent gender-normative traits has been criticized as gender roles and tendencies have deviated from a close correspondence to the two dimensions (e.g., Auster & Ohm, 2000; Donnelly & Twenge, 2017; Twenge, 1997).

Although important differences exist between these frameworks, each contrasts dimensions that focus on individuals being motivated to obtain personal outcomes—with a consistency in themes such as self-expression, power, stimulation, and mastery—to dimensions that focus on seeking outcomes tied to interpersonal others—with a consistency in themes of caring for others' wellbeing, and acting in ways that promote/maintain social relationships and ingroup harmony. The striking similarity between these frameworks has been noted by many researchers and is so pronounced that measures and constructs are frequently repurposed between the frameworks (e.g., Abele & Wojciszke, 2014; Buchanan & Bardi, 2015; Frimer et al., 2011; Helgeseon, 1994; Locke, 2000; Miyamoto et al., 2018; Oishi et al., 1998; Ponikiewska et al., 2020; Trapnell & Paulhus, 2012; Verplanken et al., 2009; Wood & Eagly, 2015). Table A1 of the appendix list works that discuss and document ties between each framework in Table 2.

On the whole, the two dimensions can be thought of as superordinate motivational categories that regroup a range of more specific construct types, including values, goals, desires, traits, and any variable reflecting tendencies to pursue self- and other-oriented outcomes. Further, these are high-level inclinations which can manifest in more specific domains of motivation. That is, similarly to how broad personality traits like conscientiousness and neuroticism are composed of lower-order aspects/facets (e.g., facets or aspects like orderliness and volatility; DeYoung, 2015; Soto & John, 2017), self-focused motivations regroup lower-order concerns such as values and motives to seek "power", "achievement", or "hedonistic pleasures", which are more specific types of concerns that all share a core element of pursuing something for the self. Likewise, other-focused orientations regroup lower-order concepts such as tendencies to seek "affiliation", "benevolence", or "protecting others", where the core focus is on interpersonal others (including specific individuals or larger groups). Given our goal to

predict broad patterns in prosocial and antisocial behaviours, we prioritize a study of higher-order, chronic differences in motivation to maximise *bandwidth* in our predictions. That is, constructs that cover broad tendencies across a range of motivational domains (e.g., a global other-focused orientation) should better predict general classes of behaviours (e.g., general engagement in a range of prosocial behaviours) than would more narrowly-defined subordinate concepts. Subordinate concepts (e.g., pro-environmental values) may instead better predict behaviours that are similarly narrowly defined (e.g., pro-environmental behaviours). Such ideas are frequently discussed within the bandwidth-fidelity trade-off in personality research (Hogan & Roberts, 1996, Ones & Viswesvaran, 1996; Soto & John, 2017).

That said, there are multiple ways to conceptualize high-level tendencies in self- and other-focused orientations (Table 2). For instance, one may operationalize tendencies at the level of stable personality traits. Notably, the Interpersonal Circumplex tradition describes the traits of agency and communion as representing two primary human motivations: "getting ahead" versus "getting along" (Abele et al., 2016; Horowitz et al., 2006). Additionally, the motivations can be represented at the level of human values. According to Schwartz's and colleagues (2012b), basic values can be organized at the highest level according to whether they focus on social (e.g., benevolence, conformity) or personal (e.g., hedonism, power) concerns. Other frameworks delineate basic motivational tendencies in more specific terms (e.g., outlining motives for affiliation and intimacy, or achievement and power; Schönbrodt & Gerstenberg, 2012), but the categories usually still reflect broad differences in chronic self- and other-focused concerns. In this project (particularly Study 4), we will sample different ways of operationalizing the motivational tendencies to draw more generalizable conclusions. This will also allow us to track how much heterogeneity exists between operationalizations.

1.3.1. How Divergent are Self- and Other Focused Orientations?

Most theories view self- and other-focused orientations as distinct dimensions, and empirical findings support this view (e.g., De Dreu & Nauta, 2009; Markus & Kitayama, 1991; Trapnell & Wiggins, 1990; but see Meglino & Korsgaard, 2004). Although early research frequently described the two dimensions as either independent or opposing, several works have since posited theoretical reasons to expect them to be positively related, and often supportive or mutually reinforcing (Heilbrun & Bailey, 1986; Leonard, 1997). For example, fostering close relationships with others can be the first step to receiving support from them (Kitayama et al., 2010), and the development of an internalized sense of self-compassion can help one develop compassion towards others (Neff & Pommier, 2013). There are also cases when self-focused and other-focused orientations directly lead people to pursue similar endpoints. For example, both collectivism (other-focused) and performance/status motives (self-focused) can lead young adults to pursue prestigious employment (e.g., Fouad et al., 2008; Haase & LautenschlaGer, 2011). For other-focused individuals, this pursuit may arise from wishing to meet the expectations from others (e.g., parents; Fouad et al., 2008), whereas for self-focused individuals, the goal may be to achieve prestige (though what is considered prestigious and successful is still defined by broader social norms; Gerbasi & Prentice, 2013).

In addition to these perspectives, a positive association between self-focused and other-focused orientations could also emerge as the result of a general motivational factor, reflecting a disposition to act in goal-directed ways. For instance, some individuals are chronically motivated to act to fulfil their motivations, but others may find themselves in chronic states of amotivation/apathy (Husain & Roiser, 2018). Such a general factor has been described by researchers in several areas, spanning both the motives and values literatures (Batey et al., 2011;

Borg & Bardi, 2016; Gunnell & Gaudreau, 2015). For example, Borg & Bardi (2016) posit a "value-guidedness" factor underlying human values, representing a general disposition to act in pursuit of one's values.

Theoretical positions that self-focused and other-focused orientations should be positively correlated also hold empirical grounds. Studies have frequently found measures of self-focused (e.g., agency, personal focus values, independence) and other-focused (e.g., communion, social focus values, interdependence) orientations to be correlated between $r = 0$ and 0.5, with the magnitude of that correlation depending on the specific construct evaluated (e.g., Abele & Wojciszke, 2007; Datu, 2015; DeYoung et al., 2007; 2013; Gerbasi & Prentice, 2013; Heilbrun & Bailey, 1986; Howell & Buro, 2017; Joyal-Desmarais et al., 2020; Schwartz & Boehnke, 2004; Singelis, 1994; Trapnell & Paulhus, 2012; Wang & Wang, 2016; Ward et al., 2006; Weisberg et al., 2011). Taking these findings into account, we expect that the true average correlation between the two dimensions is likely located in the middle of the above range (moderate and positive).

1.4. How Do Self-Focused and Other-Focused Orientations Relate to Prosocial and Antisocial Behaviours?

In the literature on *prosocial* behaviours, there has long been debate about whether people engage in prosocial acts predominantly for altruistic (other-focused) or selfish (self-focused) reasons (Batson 1987; Schaller & Cialdini, 1988; Rothstein & Pierotti, 1988; Schroeder et al., 1988). Over the years, studies have indicated that people can and do engage in prosocial behaviours for both types of reasons (Snyder & Dwyer, 2012). For example, research on volunteerism (Carpenter & Myers, 2010; Clary et al., 1998) shows that people commonly volunteer for both self-oriented reasons (e.g., to improve one's career prospects or reputation)

and other-oriented reasons (e.g., to fulfil humanitarian values or conform with social norms).

Interventions have also successfully leveraged both types of reasons to encourage prosocial

behaviour (e.g., Clary & Snyder, 1999, Simpson & Willer, 2008).

Yet, the relative importance of the two types of motivations remains unclear.

Additionally, research has mostly examined whether these motivational factors can promote

specific prosocial behaviours (e.g., volunteerism), rather than prosocial behaviours in general.

This is an important omission, as although each type of motivational orientation can be leveraged

to promote a given prosocial behaviour, it is also possible for them to lower other forms of

prosocial behaviours. For example, self-focused reasons can lead to more helping (e.g., to feel

better about oneself; Clary & Snyder, 1999) and less helping (to protect personal resources;

Joyal-Desmarais et al., 2018; 2023). Therefore, a global perspective on how the two types of

motivational orientations relate to prosocial behaviours is warranted.

There is also substantial evidence that people can engage in or refrain from antisocial

behaviours for either self- or other-focused reasons (Baron, 1971; Baumeister et al., 1996;

Borden & Taylor, 1973; Halevy et al., 2008; Lambe et al., 2018; Nagin & Pogarsky, 2003;

Wispé, 1972). For instance, a person may harm someone to re-establish a positive self-image

following an insult (Lambe et al., 2018), or to express power-related motivations (Adams et al.,

1995; Henry et al., 2005)—both self-focused reasons. However, a person can also harm others

for other-focused reasons, such as to protect others (Böhm et al., 2016), to further a social cause

(Long & Burke, 2015), to fulfil someone's request (Borden & Taylor, 1973), or to

enforce/impose a group's social norms (Chowdhry, 1997; Faragó et al., 2019). Certain self-

focused and other-focused orientations have shown specific relations with specific types of

antisocial behaviours. For example, self-enhancement values (self-focused) generally positively

predict aggression, whereas self-transcendence values (other-focused) inhibit it (Benish-Weisman 2015; 2019). Yet, as with prosocial behaviour research, the overall associations between self-focused orientation, other-focused orientations, and antisocial behaviours are not fully documented.

Although self- and other-focused orientations can each motivate or inhibit prosocial and antisocial behaviours (e.g., depending on contextual factors), the overall associations between these variables should operate in systematic ways. One important factor in determining the strength and direction of each association may be the degree to which a type of behaviour functions either as an *end* or a *mean* to achieve motivational outcomes. Engaging in a behaviour is an *end* if doing so (or not) is inherently a "success" in relation to fulfilling central concerns for a motivational orientation (i.e., does the behaviour inherently impact a desired outcome?). In this way, just as eating inherently fulfils hunger needs, engaging in prosocial behaviours (e.g., helping a neighbour) directly fulfils other-focused concerns by increasing positive outcomes for others and/or helping build and maintain relationships (the core concerns of other-focused orientations). In contrast, antisocial behaviours (verbal aggression) directly threaten these same core concerns (e.g., harming others is antithetical to benefiting others, and actively harms relationships), and thus avoiding such behaviours can be inherently deemed a success (i.e., an end).

Generally, we can expect that motivational orientations will manifestly predispose individuals towards the ends of pursuing behaviours that inherently fulfil or express their core concerns, and avoiding behaviours that inherently threaten or are detrimental to such concerns (Joyal-Desmarais et al., 2023). Individuals will, of course, vary in their *perceptions* (explicit or implicit) of the extent to which any given behaviour impacts the specific type of other-focused

concerns they hold. Yet, on average, there should be a strong link between holding other-focused

motivations and seeing prosocial (antisocial) behaviours as ends for one's motivational pursuits.

Thus, individuals who have greater other-focused orientations should engage in substantially

more frequent prosocial behaviours and fewer antisocial behaviours (see Bardi & Schwartz,

2003, for a similar rationale). For example, those with strong communal tendencies (concerned

with building/maintaining relationships and caring for others) and those with strong universalism

values (concerns for the welfare of all people) should show strong tendencies towards helping

and cooperating with others, and against harming others.

In contrast, engaging in a behaviour is a *means* if the action (or inaction) is indirectly

(rather than directly) serving to fulfil a motivational concern. For instance, many individuals

work, not because work is inherently a desired outcome, but because of its by-products, such as a

salary that can support other needs, like self-preservation, by enabling one to buy sustenance.

Thus, working does not fulfil self-preservation, but it acts as a means towards that motivational

concern. Similarly, a highly self-focused person can engage in prosocial or antisocial behaviours

not for the inherent impacts on others, but to serve their own benefits (e.g., improve one's

reputation; Carpenter & Myers, 2010). If self-serving outcomes can readily be attained from

many prosocial and antisocial behaviours—an assertion many interventions depend on (e.g.,

Clary & Snyder, 1999; Simpson & Willer, 2008)—then people with strong self-focused

orientations should be attuned to these possibilities and be ready to profit from them. For

instance, they may readily act on obvious opportunities (e.g., theft of unattended valuables) or be

motivated to reshape acts to their favour (e.g., request public recognition prior to accepting to

donate). Such persons may focus their attention mostly on how prosocial/antisocial behaviours

serve self-focused concerns (Derryberry & Tucker, 1994; Dijksterhuis & Aarts, 2010), and may

overlook the inherent impacts of these behaviours on others, which emerge as by-products of their self-focused pursuits (Rothstein & Pierotti, 1988). Of course, self-focused individuals will also be attuned to avoid situations when prosocial and antisocial behaviours will be detrimental to their self-focused pursuit (e.g., they may avoid donating funds unless personal benefits outweigh the costs). But, they should still be eager to engage in such behaviours when doing so serves their interests. Additionally, agency and seeking to assert oneself are key aspects self-focused orientations (Table 2)—which may generally lead people towards action over inaction.

In contrast, those with weak self-focused orientations may lack the motivation to attend to and exploit prosocial or antisocial behaviours in the same way. That is, they have little motivation to engage in self-serving behaviours (be they prosocial or antisocial), but likewise have little reason to engage in behaviours that do not serve the self either. If so, these dynamics should generate positive associations between self-focused orientations and *both* prosocial and antisocial behaviours. This is because one group (low self-motivation) is unlikely to engage in prosocial or antisocial behaviours, whereas the other group (high self-motivation) will engage in the behaviours at least when personal benefits are to be gained. However, because prosocial and antisocial behaviours do not always afford personal benefits, the associations between the behaviours and self-focused orientations should be weaker than those between the behaviours and other-focused orientations (where prosocial/antisocial acts always do impact others).

1.5. Hypotheses and Current Research

All in all, the theoretical discussions above allow us to propose a series of hypotheses about the general impact of self-focused and other-focused orientations on prosocial and antisocial behaviours. First, we expect self-focused orientations to be a positive predictor of the two behaviours:

H₁: Self-focused orientations should have a positive association with antisocial

behaviours, independent of the effect of other-focused orientations

H₂: Self-focused orientations should have a positive association with prosocial

behaviours, independent of the effect of other-focused orientations

Second, we expect other-focused orientations to predict the two behaviours in opposite

directions:

H₃: Other-focused orientations should have a negative association with antisocial

behaviours, independent of the effect of self-focused orientations

H₄: Other-focused orientations should have a positive association with prosocial

behaviours, independent of the effect of self-focused orientations

Hypotheses H₁-H₄ are represented in Figure 1.
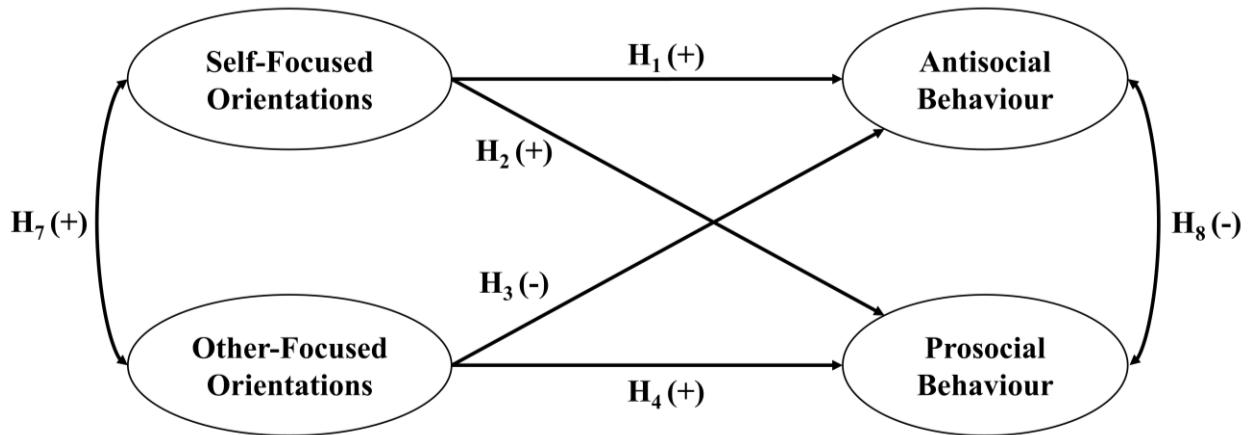
In addition to the primary hypotheses above, we also conduct exploratory analyses to

examine how H₁-H₄ vary according to:

(1) the populations from which we draw our samples (Studies 2 & 3 will examine our

hypotheses cross-nationally);

(2) the ways in which the variables are operationalized (Study 4 will sample several

operationalizations of each construct)

Finally, we also posit secondary hypotheses. First, because prosocial/antisocial

behaviours are usually ends for achieving other-focused concerns, but not self-focused concerns:

H₅: Other-focused orientations should have a stronger association with antisocial

behaviours than should self-focused orientations

H₆: Other-focused orientations should have a stronger association with prosocial

behaviours than should self-focused orientations

Figure 1. Our general model and predictions (direction of prediction for each predictive pathway is indicated in parentheses).

Consistent with past empirical findings, we also make the following predictions about the correlations between our variables:

H7: Self-focused and other-focused orientations should have a moderate positive association (e.g., *r* around .3)

H8: Antisocial and prosocial behaviours should have a small-to-moderate negative association. (e.g., *r* below 0, but above -.5)

We examine these hypotheses and questions in four studies. Analyses were conducted using *R* (R Core team, 2017). Analysis scripts and full survey materials, including all measures we used, are available online (see supplemental materials and project page at: osf.io/fwypt). All data are also available (details are provided in each study descriptions).

Finally, we note that our research predominantly concerns how self- and other-focused orientations are each associated with prosocial and antisocial behaviours when controlling for the other orientation (except H7 and H8). This approach was chosen as the frequently observed association between self- and other-focused orientations can create a confounding effect when evaluating how each orientation predicts behaviours. However, because bivariate associations

still provide important information, we present them in our supplemental materials (see Tables S3, S8, S27 and S28). Bivariate findings are largely in line with the multivariate analyses presented in text and are not discussed further.

2. Study 1

The goal of Study 1 was to examine how self- and other-focused orientations relate to prosocial and antisocial behaviours. To do this, we conducted secondary analyses using the National Longitudinal Study of Adolescent to Adult Health (Add Health; Harris et al., 2009). Add Health is a longitudinal study that began following a nationally representative sample of American grade 7-12 adolescents in 1994-95 (Wave I of Add Health) to understand health and achievement outcomes. Extensive information on the Add Health procedures are available online (Harris et al., 2009).

2.1. Our Sample

Our analyses use the *Wave III Public In-Home Questionnaire* portion of the Add Health data (conducted in 2001-2002), which was the only wave that contained necessary items to formulate composite measures of each of our constructs of interest. The data were obtained from the www.icpsr.umich.edu website on October 29, 2015 (Harris & Udry, 2014). We included all participants who completed at least one of 14 items identified as indicators of self- and other-focused orientations. This criterion was chosen because only a subset of participants was assigned items to measure self-focused and other-focused orientations. In total, we analysed responses from 1,319 participants. The sample is predominantly female (61.3%) and White (70.8%), with a mean age of 22 years ($SD = 1.8$). Additional Study 1 demographics are available in the supplemental materials (Table S1).

2.2. Measures

All items used to operationalize Study 1 variables are presented in Table S2 of the supplemental materials and descriptive statistics for each measure are in Table S3.

2.2.1. Self-focused and other-focused orientations.

We assessed self- and other-focused orientations using a subset of items from the 30-item short form BEM Sex-Role Inventory (BSRI; Bem, 1981). The BSRI consists of statements describing a person and asks participants to indicate on a seven-point scale the degree to which each statement describes them (1 = "never or almost never true"; 7 = "always or almost always true"). The BSRI was originally developed to measure normative masculine, feminine, and neutral personality traits. However, in conceiving these dimensions, Bem drew heavily from ideas that are central the interpersonal circumplex tradition, reflecting gendered values people are socialized to pursue (Bakan, 1966; Bem et al., 1976). Thus, the masculine dimension bears close correspondence to the self-focused orientation of agency (e.g., describing a pursuit of personal benefits; increasing one's control over personal outcomes), whereas the feminine dimension bears close correspondence to the other-focused orientation of communion (e.g., creating/maintaining relationships, caring for and nurturing others). The correspondence is substantial enough that a consensus exists in the literature that the masculine scale and feminine scale are reliable and valid measures of the motivational dimensions of agency and communion, respectively (Helgeson, 1994; Hiller & Philiber, 1985; Lippa, 2001; Locke, 2000; Saragovi et al., 1997; Wiggins & Holzmuller, 1981; Ward et al., 2006; Wood & Eagly, 2015). Additionally, though personality trait measures like the BSRI focus on summarizing what a person is like descriptively (without referencing the reasons underlying the actions), regularities in people's behaviours on such measures are thought to largely arise from motivational forces (Corr et al., 2013).

Given the above, we measured participants' *self-focused orientation* using six items from the masculine subscale that reflect ideas of personal agency (e.g., "I defend my own beliefs"; "I am independent") and participants' *other-focused orientation* using eight items from the feminine subscale that express a general orientation towards others (e.g., "I am affectionate"; "I am understanding"). In selecting items, we omitted those that referred explicitly to prosocial/antisocial behavioural tendencies (e.g., "I am aggressive"). However, inferences remain unchanged if we used the full BSRI (i.e., significant pathways remain significant in the same direction; see Figure S1 and Section 4 of the supplemental materials).

A confirmatory factor analysis (CFA) was conducted to examine the factor structure of the scales using the *lavaan* package (Rosseel, 2012). Each item loaded significantly ($p < .01$) onto its respective factor at a value of or greater than .40 (see Figure S2 of the supplemental file for full CFA results). Further, the standardized reliability alphas (α_s) were acceptable for both other-focused ($\alpha_s = .91$) and self-focused ($\alpha_s = .77$) orientation scales.

2.2.2. Prosocial and antisocial behaviours.

We used three "yes" or "no" items to assess *prosocial behaviours*. Two items asked participants whether, in the past 12 months, they had (1) performed volunteer/community service work, and (2) donated blood, plasma, or platelets. The third item asked participants whether they were registered organ donors. These items have previously been used in studies of prosocial behaviour (e.g., Konrath & Handy, 2020).

Ten items asked about *antisocial behaviours* participants had enacted in the 12 months preceding the survey. Seven items inquired about the frequencies of various behaviours (e.g., theft, property damage) on four-point scales (1 = "Never"; 2 = "1 or 2 times"; 3 = "3 or 4 times"; 4 = "5 or more times"). Two items asked whether participants had ("yes"/"no") pulled a

knife/gun on someone or stabbed someone, and a final item asked how many times participants had seriously physically injured someone (coded from 1 = Never; 6 = 5 or more times). These items have previously been used in studies of antisocial behaviour (e.g., Barnes & Boutwell, 2013; Beaver et al., 2012; Grotevant et al., 2006; Guo et al., 2007). Despite the seriousness of these behaviours, 217 participants had engaged in at least one.

A CFA indicated that each item loaded significantly onto its respective factor ($p < .01$), although not always at a level of .40 (see Figure S3 of the supplemental file). Reliability was relatively low for prosocial behaviours ($\alpha_s = .37$), but decent for antisocial behaviours ($\alpha_s = .75$).

2.3. Analyses and Results

To examine our hypotheses, we fit a structural equation model (SEM) in *lavaan* (Rosseel, 2012) using full information maximum likelihood (FIML) to handle missing data. The structure of the model was specified according to Figure 1, and latent variables were modelled according to figures S2 and S3 of the supplemental materials. A correlation matrix between all Study 1 items is available in the supplemental materials (Table S4). Table 3 presents the standardized path coefficients, standard errors, confidence intervals (CIs), and *p*-values for the SEM model. We found that a higher self-focused orientation was significantly positively associated with antisocial behaviours (H_1) and prosocial behaviours (H_2). A higher other-focused orientation was significantly and negatively associated with antisocial behaviours (H_3) and had a non-significant but positive association with prosocial behaviours (H_4). These four pathways overlapped in their CIs (H_5, H_6). Lastly, self-focused and other-focused orientations were correlated at .59 (H_7), and prosocial and antisocial behaviours were correlated at .08 (H_8).

Table 3.
Standardized results from Study 1's structural equation model

Pathway				Est.	*SE*	*p*	95% *CIs*
Regressions							
(H$_1$)	Antisocial Behaviours	~	Self-Focused Orientation	**.119**	.057	.036	[.007, .230]
(H$_3$)		~	Other-Focused Orientation	**-.189**	.054	.000	[-.295, -.083]
(H$_2$)	Prosocial Behaviours	~	Self-Focused Orientation	**.174**	.085	.041	[.008, .341]
(H$_4$)		~	Other-Focused Orientation	.112	.082	.173	[-.049, .274]
Covariances							
(H$_7$)	Self-Focused Orientation	~~	Other-Focused Orientation	**.727**	.018	.000	[.691, .762]
(H$_8$)	Prosocial Behaviours	~~	Antisocial Behaviours	**.168**	.051	.001	[.068, .268]

Note. Fit Indices: CFI = .851; RMSEA = .064 [.061, .067]; SRMR = .053. Coefficients in **bold** font are significant at $p < .05$.
Est. = Standardized parameter estimates; *SE* = Standard Error; *p* = *p* value; *CIs* = 95% Confidence Intervals.

2.4. Discussion

Study 1 offers initial evidence for our primary hypotheses. Specifically, self-focused orientations were positively associated with both antisocial and prosocial behaviours (supporting H$_1$ and H$_2$) and other-focused orientations were negatively associated with antisocial behaviours (supporting H$_3$). However, although the association between other-focused orientation and prosocial behaviours was positive, it was non-significant (not supporting H$_4$). Each of the four pathways had standardized coefficients between .10 to .20.

In terms of our secondary hypotheses, we found less support. Although the association between self-focused orientation and antisocial behaviour was smaller in magnitude than the association between other-focused orientation and antisocial behaviour, this difference was not significant (not supporting H$_5$). Similarly, the associations between each motivational orientation and prosocial behaviours also showed overlap in size (not supporting H$_6$). Although these findings contrast with our hypotheses, we note that Study 1 was likely underpowered to evaluate

H_5 and H_6, as is evidenced by the large CIs produced. Consequently, the following studies used a combination of larger samples (Studies 2 and 3) and better measurement (Study 4) to obtain more precise estimates.

Lastly, we found that our measures of self- and other-focused orientations were more highly correlated than anticipated by H_7, and that the correlation between the prosocial and antisocial behaviour measures was significant and positive, albeit small, rather than negative (contrasting with H_8). Although this last finding deviates from H_8, the small positive effect is not incompatible with our framework and could have emerged for several reasons. For instance, it is possible that the association arose due to sampling error, or that another factor is leading these behaviours to be positively correlated. For instance, young adults' opportunities to behave prosocially or antisocially are each constrained by the degree to which they are socially active. However, given that the findings of Study 1 represent only a single test of our hypotheses, we urge caution in evaluating them in isolation.

3. Studies 2 and 3

Although Study 1 provides support for several of our primary hypotheses, the study had several limitations. The sampling frame was quite focused—consisting entirely of young, predominantly white and female, Americans. We also used indicators of prosocial behaviours with a relatively low reliability, and measures of self- and other-focused orientations that were highly correlated with one another. This could have led to attenuation effects. Finally, we were only able to use a single operationalization of each of our variables of interest, limiting the generalizability of our findings. In our next two studies, we used larger and more diverse samples, and considered alternative measures for each construct. In operationalizing self- and other-focused orientations, we move away from a trait-based measure of agency and communion

to a measure of basic human values, tapping into explicitly held motivations.

3.1. The World Values Survey (WVS)

To substantially increase the diversity of our sample, we made use of data from the World Values Survey (WVS). The WVS is a large-scale cross-national collaboration, which collects nationally representative surveys around the globe to assess how values and beliefs impact behaviours. For our purposes, we used Wave 5 and Wave 6 of the WVS (Inglehart et al., 2014a; 2014b). Although each wave surveys a different sample of participants, they share similar methodologies. Consequently, we discuss them together. The data were downloaded on May 30, 2017 from www.worldvaluessurvey.org (where additional information on the WVS methodology can be found).

Wave 5 contains data from 83,975 participants (52% female; mean age = 41.46, SD = 16.49) across 58 countries, and was collected over the years 2005-2009. Wave 6 was collected between 2010-2014 and contains responses from 90,350 participants (52% female; mean age = 42.05, SD = 16.48) across 60 countries. The samples are diverse across many characteristics, including education and socioeconomic status. See Table S6 of the supplemental materials for detailed demographic analyses for Studies 2-3.

3.2. Measures

All items used to operationalize Study 2 and Study 3 variables are presented in Table S7 of the supplemental materials. Descriptive statistics for each measure are in Table S8.

3.2.1. Self- and other-focused orientations.

To assess motivational orientations, we used the set of items included in each wave of the WVS to assess constructs from Schwartz's (1994a) theory of human values. Each item described the values of an individual, and participants indicated on a six-point scale the degree to which

they felt the statement described someone like them (1 = "Very much like me"; 6 = "Not at all like me"). To ease interpretability, we recoded items such that higher scores would indicate higher endorsements of similarity.

Schwartz and colleagues (2012b) classify values into two higher-level categories: personal focus values and social focus values. Personal focus values tie closely to our conception of *self-focused orientations*, and touch on values to pursue one's self-interest (e.g., achieving power, status, enjoyable experiences), while also gaining new experiences and skills (which allow one to express greater personal mastery over the world around them). We therefore operationalized self-focused orientations using an average score of personal focus values assessed in the WVS (Schwartz et al., 2012b). In both waves, we used four items that measure values of *self-direction*, *power*, *hedonism*, and *achievement*. Sample items include "It is important to this person... to have a lot of money and expensive things" and "... to do things one's own way".

Social focus values tie closely to our conceptualization of *other-focused orientations*, and include values that concern others' wellbeing (e.g., doing good) and for interpersonal relationships and social order (e.g., conforming to social norms). We therefore operationalized *other-focused orientations* using an average score of values with a social focus (Schwartz et al., 2012b). We used three items in Wave 5, along with an additional fourth item included only in Wave 6 of the WVS, that measure values of *benevolence*, *conformity*, and *universalism*. Sample items include "It is important to this person... to always behave properly" and "... to do something for the good of society".

CFAs indicated all items significantly and positively ($p < .001$) loaded onto their respective factors above .40 at both waves (see Figures S4 and S5 of the supplemental materials

for full CFA results). Both scales had decent reliabilities (α_s ranged from .61 to .76).

3.2.2. Prosocial behaviours and antisocial attitudes.

In Wave 5, *prosocial behaviours* were assessed using two items asking individuals whether they were active members, inactive members, or non-members of (1) environmental, or (2) humanitarian or charitable organizations. We only considered *active memberships* in these organizations, as inactive memberships may not be as indicative of being engaged in prosocial behaviours promoted by these organizations (Parboteeah et al., 2004). Given relatively low membership rates, the two items were aggregated into a dichotomous measure assessing whether people were active members of *either or both* types of organizations (10.1% of respondents) or not. The two items were correlated at .32. For Wave 6, we used two additional items assessing whether, in the prior two years, participants had (1) given money to an ecological organization, or (2) participated in a demonstration for an environmental cause. The four items in Wave 6 were aggregated into a dichotomous index to indicate whether individuals had engaged in *any* of the behaviours (21.4% had done so). The four items in Wave 6 had α_s = .50.

Although Waves 5 and 6 did not collect data on antisocial behaviours directly, they contain several items assessing antisocial attitudes, which conceptually act as mediators between motivational orientations and behaviours, and can be used as a proxy measure indicating a proclivity towards antisocial behaviours. For Wave 5, we averaged five items asking participants the degree to which they thought certain antisocial behaviours were justifiable on a ten-point scale (1 = "Never justifiable"; 10 = "Always justifiable"). These behaviours included financial fraud (e.g., cheating on taxes) and violence (e.g., a man beating his wife), and the items had good reliability (α_s = .80). The same items were used in Wave 6, along with three additional items about: (1) stealing property; (2) parents beating children, and; (3) the use of violence against

others. Items in Wave 6 also had good reliability ($\alpha_s = .87$). Raw scores on our measures of

antisocial attitudes were skewed in both Waves, so we applied a log-transformation to normalize

their distributions.

We conducted CFAs on the antisocial attitude items (Waves 5 and 6) and the prosocial

behaviour items (Wave 6 only). All items significantly and positively ($p < .001$) loaded onto

their respective factor above .40 (except one prosocial behaviour item with a loading of .38; see

Figures S6 and S7 of the supplemental materials for full CFA results).

3.3. Analyses and Results

We standardized all variables prior to analyses. We then conducted two separate multi-

level models in each wave of the WVS, using the *lme4* (Bates et al., 2015; 2018) and *lmerTest*

packages (Kuznetsova et al., 2017).

First, we fitted a linear mixed effects model predicting antisocial attitudes from self- and

other-focused orientations. Second, we fitted a mixed-effects logistic regression to predict

engagement in prosocial behaviours, again using self- and other-focused orientations as

predictors. In each model, data were nested within country, and random intercepts were

estimated along with random effects for each predictor. Our results are presented in Table 4.

Figure 2 displays the estimated within-country effects (i.e., magnitude of slopes for each

country) in Wave 6. The distribution of within-country effects was similar in Wave 5 and is

presented in Figure S8 of the supplemental files. Taken together, our analyses made use of data

from 78 unique countries.

Table 4.
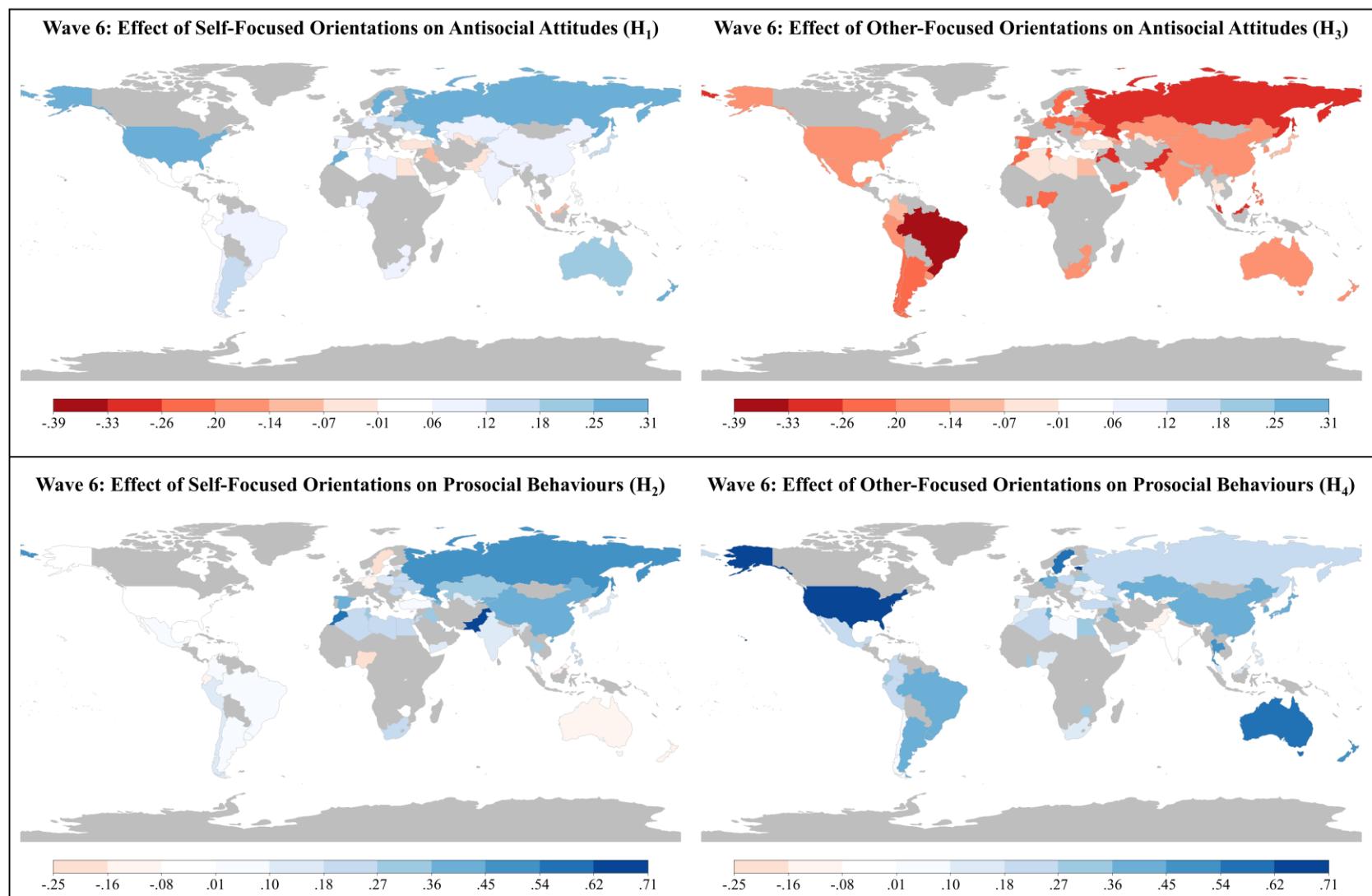
Results of Multi-Level Models Using Waves 5 and 6 of the World Values Survey

(1) Linear Mixed-Effects Model Predicting Endorsement of Antisocial Attitudes

Parameter	Wave 5 ($N = 70,956$; $k = 51$)				Wave 6 ($N = 88,127$, $k = 60$)			
	Est.	SE/SD	p	99% CI	Est.	SE/SD	p	99% CI
Fixed Effects								
Intercept	.071	.049	.152	[-.055, .196]	-.004	.049	.930	[-.130, .121]
Self-Focused Orientations (H₁)	**.127**	.011	<.001	[.099, .156]	**.083**	.138	<.001	[.047, .118]
Other-Focused Orientations (H₃)	**-.205**	.012	<.001	[-.234, -.175]	**-.188**	.012	<.001	[-.218, -.158]
Random Effects								
Intercept	.120	.346			.142	.377		
Self-Focused Orientations	.005	.074			.011	.103		
Other-Focused Orientations	.006	.077			.007	.086		

(2) Mixed-Effects Logistic Regression Predicting Engagement in Prosocial Behaviours

Parameter	Wave 5 ($N = 72,175$, $k = 52$)				Wave 6 ($N = 88,720$, $k = 60$)			
Fixed Effects	Est.	SE/SD	p	99% CI	Est.	SE/SD	p	99% CI
Fixed Effects								
Intercept	-2.594	.151	<.001	[-2.983, -2.205]	**-1.525**	.109	<.001	[-1.806, -1.244]
Self-Focused Orientations (H₂)	.047	.028	.098	[-.026, .120]	**.148**	.030	<.001	[.071, .224]
Other-Focused Orientations (H₄)	**.326**	.030	<.001	[.250, .403]	**.244**	.030	<.001	[.165, .322]
Random Effects								
Intercept	1.160	1.077			.706	.840		
Self-Focused Orientations	.020	.142			.044	.209		
Other-Focused Orientations	.021	.144			.046	.214		

Note. N = Number of participants; k = Number of countries; Est. = Standardized parameter estimates; SE = Standard Error (for fixed effects); SD = Standard Deviation (for random effects); p = p value; CIs = Confidence Intervals, 99% CIs were used instead of 95% CIs given the large sample sizes of the WVS. Sample sizes varied across models depending on missing data, and whether a given country completed measures of a particular outcome variable. Results across the four models rely on data from 78 unique countries. Coefficients in **bold** font are significant at $p <.001$.

Figure 2. Graphical representation of Study 3 results (Wave 6 of the WVS). Darker blue colours indicate a stronger positive association within a given country, whereas darker red colours represent stronger negative associations. Countries in grey colour have no data available. The effects consist of the fixed effects, adjusted by the random effect estimate for each country. Maps were created using the *rworldmap* (South, 2011; 2016), *classInt* (Bivand, et al., 2018), and *RColorBrewer* (Neuwirth, 2011) packages.

When modelling *antisocial attitudes*, self-focused orientations had a significant positive association with antisocial attitudes in both WVS waves (H_1). Estimated slopes were positive in 96% of countries in Wave 5, and in 85% of countries in Wave 6. Conversely, other-focused orientations had significant negative associations with antisocial attitudes in both waves (H_3). Estimated slopes were negative in 98% of countries in Wave 5 and 100% of countries in Wave 6.

When modelling *prosocial behaviours*, self-focused orientations had a non-significant association with prosocial behaviours in Wave 5, but a significant positive association with prosocial behaviours in Wave 6 (H_2). Estimated slopes were positive in 67% of countries in Wave 5, and 78% of countries in Wave 6. Other-focused orientations had a significant positive association with prosocial behaviours in both Waves (H_4). Estimated slopes were positive in 100% of countries in Wave 5, and 88% of countries in Wave 6.

Across models, effects associated with other-focused orientation were always significantly larger than corresponding effects associated with self-focused orientation, except when predicting prosocial behaviour in Wave 6 (H_5, H_6). Lastly, the correlation between the two motivational measures was .29 in Wave 5 and .36 in Wave 6 (H_7), and the correlations between antisocial and prosocial behaviours were -.00 and .08 (H_8).

3.4. Discussion

Studies 2 and 3 build on Study 1 in several ways. They extend our analyses to different indicators of self-/other-focused orientations, and of prosocial/antisocial behaviours. In addition, they use substantially larger samples to provide increased reliability in our estimates, and extend our findings to an international context, allowing us to examine the degree to which our observed effects vary cross-nationally. Here, we summarize our findings.

How do self-focused orientations relate to our outcomes? We found significant positive

associations between self-focused orientations and antisocial attitudes in both samples (averaging around estimates of .10), and these associations were highly consistent across countries. This provides good support for H_1. We also observed a significant positive effect between self-focused orientations and prosocial behaviours in Wave 6, but not in Wave 5, and the average effect across waves was again near .10. Notably, there was substantial variation in the association between self-focused orientations and prosocial behaviours across countries, providing more mixed support for H_2, suggesting that the association between self-focused orientations and prosocial behaviours may be variable across geographical contexts (e.g., see Figure 2).

What about the effects of other-focused orientations? We found that other-focused orientations had negative associations to antisocial attitudes, and positive associations to prosocial behaviours in both waves. These effects were moderate in magnitude (i.e., standardized regression effects between .2 and .3), and notably homogenous across countries (88-100% of countries showed these associations). This provides clear support for H_3 and H_4.

When examining relative effect sizes (i.e., comparing CIs in Table 4), the effects of other-focused orientations were always larger than the effects of self-focused orientations. This difference was significant in three of four comparisons, providing good support for H_5 and H_6.

Finally, we found that self- and other-focused orientations had a moderate positive relationship to one-another, supporting H_7. However, we did not find support for a negative association between antisocial attitudes and prosocial behaviours (H_8).

4. Study 4

Studies 2 and 3 benefitted from large samples drawn across many different countries. However, these studies relied on pre-existing datasets, thereby limiting our choice of measures.

We only had access to an attitudinal measure of antisocial behaviours and a small sample of

prosocial behaviours—the latter of which predominantly focused on environment-related

prosocial behaviours (which may be more strongly associated to values like universalism than

other types of prosocial behaviours would be; Skimina et al., 2019). Although the self- and other-

focused orientation measures in the WVS are composite measures of various value constructs,

they still represent only one additional operationalization of our constructs relative to Study 1

and had relatively low reliabilities. These factors leave open the possibility that we could obtain

different results if we used alternative measures of our variables. Particularly, because we

conceive self- and other-focused orientations as higher order classes of variables, we anticipate

that differences can and should arise when using different lower-order constructs to

operationalize them. For instance, both independence and power motivation are self-focused

orientations; however, independence and power motivations are not themselves interchangeable,

and are therefore free to diverge in their relations to other variables. Further, using more abstract

and wide-ranging indices of self-focused and other focused orientations (e.g., broad differences

in agency or in high-level values that are self-focused) should lead to more consistent patterns

than using more specific indicators (e.g., independence and power motivations). Achieving an

accurate understanding of self- and other-focused orientations as superordinate categories of

constructs thus requires an adequate sampling of the constructs that make up these categories.

Consequently, in Study 4, we collected data with a more optimized set of measurements.

Specifically, we examine effects associated with 19 distinct measures of self- and other-focused

orientations, prosocial behaviours, and antisocial behaviours.

4.1. Sample and Procedure

Because our first three studies found several small effect sizes, we powered Study 4 to detect such effects. A power analysis using *G*Power* (Faul et al., 2009) suggested a sample of *N* = 567 would be enough to achieve a power of .95 for effects of *r* = .15. Using Amazon's Mechanical Turk (MTurk), we recruited 601 participants in February 2018. The study was approved by the institutional review board of the University of Minnesota, and all participants provided informed consent prior to participation.

To participate, individuals were required to be at least 18 years of age and residing within the United States. Participants completed a 30-minute survey online containing all our measures of interest. To promote data quality, the survey included 8 attention and honesty check items (see Table S9 of supplemental materials). Twenty-nine participants failed three or more items and were excluded, leaving 572 participants. The resulting sample was predominantly female (61%), White/Caucasian (79%), and had a mean age of 41.7 years (*SD* = 13.0). See Table S10 of supplemental materials for detailed Study 4 demographics.

4.2. Constructs and Measures

We used six measures of self- and other-focused orientations, respectively, four measures of prosocial behaviours, and three measures of antisocial behaviours. Each measure was scored using a two-parameter item-response theory (IRT) model, using the *mirt* package (Chalmers, 2012), and a generalized partial credit model. Using IRT over classical test theory (e.g., taking the mean of items) allows us to reduce measurement error, while aiding to normalize our variables. Our data, survey materials, and *R* script files can be found on our project page (osf.io/fwypt). Further, information on IRT analyses for each measure in Study 4 (item factor loadings, item discrimination, and item difficulty parameters) can be found in Tables S14 to S25

of the supplemental materials. Descriptive statistics and correlation matrices covering all our

measures can also be found in Tables S26, S27 and S28.

4.2.1. Self-focused and other-focused orientations.

Table 5 summarizes the measures we used to assess motivational orientations, showing

example items and reliability information for each scale. Table S11 of the supplemental materials

provides a list of all the items that were used. In choosing operationalizations, we explicitly

varied measures to tap into different aspects of how people's motivations manifest, tapping into

behavioural (e.g., trait personality measures), cognitive (e.g., self-conception measures), and

affective (e.g., what they desire) components.

4.2.1.1. Assertiveness vs. compassion. The first scales completed by participants were the

agreeableness and extroversion scales of the Big Five Aspects Scale (BFAS; DeYoung et al.,

2007). In the BFAS, extroversion is broken down into the two aspects of assertiveness and

enthusiasm, whereas agreeableness is broken down into compassion and politeness. We focused

our analyses on the aspects of *assertiveness* and *compassion*. Respectively, these correspond

closely to the agency and communion dimensions of the Interpersonal Circumplex and can

interchangeably be used as measures of these dimensions (DeYoung et al., 2007; 2013). As

previously noted, agency and communion differ in the extent to which they are concerned with

seeking benefits for the self and for others (Abele & Wojciszke, 2007), and the BFAS offers an

index of how well people's behaviours typically match pursuit of these motives.

Table 5.
Summary of Study 4 Measures to Assess Self-Focused Orientations and Other-Focused Orientations.

Measure	Scales	α_s	Example Items, in reference to self. (and reverse-coded items if present)	Response Range and Anchors	*r* between scales
BFAS	Assertiveness	.88	Have a strong personality Wait for others to lead the way[a]	1 = strongly disagree; 5 = strongly agree	.18
	Compassion	.91	Take an interest in other people's lives Am indifferent to the feelings of others[a]		
PVQ5X	Personal focus values	.90	It is important to me to make my own decisions about my life	1 = strongly agree; 7 = strongly agree	.63
	Social Focus Values	.92	I strongly value the traditional practices of my culture		
SCS	Independent Self-Construal	.81	I enjoy being unique and different from others in many respects	1 = strongly agree; 7 = strongly agree	.28
	Interdependent Self-Construal	.85	My happiness depends on the happiness of those around me		
SOI	Self-Interest	.88	I keep an eye out for my interests	1 = strongly agree; 7 = strongly agree	.61
	Other-Interest	.90	I keep an eye out for other's interests		
UMS	Power Motivation	.92	To be able to exert influence	1 = strongly disagree/not at all important; 7 = strongly agree/extremely important	.25 to .56[b]
	Achievement Motivation	.90	My goal is to do at least a little bit more than anyone else has done before		
	Affiliation Motivation	.92	I like to make as many friends as I can		
	Intimacy Motivation	.88	To have a close, intimate relationship with someone		

Note. α_s = standardized reliability alpha; *r* = Pearson bivariate correlation; BFAS = Big Five Aspects Scale (DeYoung et al., 2007); PVQ5X = Portrait Values Questionnaire 5X Value Survey (Schwartz et al., 2012a, 2012b); SCS = Self-Construal Scale (Singelis, 1994); SOI = Self- and Other-Interest Inventory (Gerbasi & Prentice, 2013); UMN = Unified Motives Scales (Schönbrodt & Gerstenberg, 2012).
[a]Reverse-coded item.
[b]Range corresponds to the correlations between any given self-focused measure (power & achievement) and any given other-focused measure (affiliation and intimacy).

4.2.1.2. Personal focus values vs. social focus values. Value orientations were assessed

using an adapted version of the Portrait Values Questionnaire 5X Value Survey (PVQ5X;

Schwartz et al., 2012a, 2012b) asking participants to rate the importance of 19 values using 48

items. Items can be used to represent two higher order factors of how much people endorse

personal and social focus values (Schwartz et al., 2012b). *Personal focus values* include self-

direction, stimulation, hedonism, achievement, power, face, and personal security. *Social focus*

values include universalism, benevolence, humility, conformity, tradition, and societal security.

4.2.1.3. Independent self-construal vs. interdependent self-construal. Self-construal was

assessed using Singelis' (1994) Self-Construal Scale (SCS). The SCS consists of two 12-item

scales. The first scale assesses *independent self-construal*, defined as the degree to which a

person conceives their sense of self in terms of its autonomy and independence (Markus &

Kitayama, 1991; Singelis, 1994). Independent self-construal is a self-focused orientation and

reflects motivations to express/strengthen one's autonomy and independence. The second scale

measures *interdependent self-construal,* the degree to which a person conceives their sense of

self as fundamentally embedded in and dependent on those around them (Markus & Kitayama,

1991; Singelis, 1994). Interdependent self-construal is an other-focused orientation, and reflects

motivations to maintain/promote social connections, largely by adhering to social norms. Though

the scales are designed to tap into a person's self-conceptualization, items refer to people's

explicit preferences, values and motives (e.g., "I enjoy being unique and different from others in

many respects").

4.2.1.4. Self-interest vs. other-interest. The Self- and Other-Interest Inventory (Gerbasi

& Prentice, 2013) consists of two nine-item scales, which directly assess the extent to which

individuals are interested and motivated to act in their own *self-interest* (e.g., by achieving social

success, happiness) or in other people's interest (i.e., *other-interest*; e.g., by helping others achieve social success and happiness).

      4.2.1.5. Power and achievement motives vs. affiliation and intimacy motives. The final measure was an adaptation of the Unified Motives Scales by Schönbrodt and Gerstenberg (2012). This measure consists of four ten-item scales, containing a mixture of statements describing the self or various goals a person may have. The first two scales assess self-focused orientations: *power motivation* (the desire to impact/control others and achieve personal success) and *achievement motivation* (the desire to learn and master tasks to demonstrate personal excellence). Two other scales assess other-focused orientations: *affiliation motivation* (the desire to build/maintain friendly relationships with others in general) and *intimacy motivation* (the desire to form profound mutual relationships with specific close others).

      4.2.2. Measures of prosocial and antisocial behaviours.

      Table 6 summarizes the measures we used to assess prosocial and antisocial behaviours and provides sample items and reliability information. Tables S12 and S13 of the supplemental materials list all items used.

4.2.2.1. Prosocial behaviours. Participants first completed 12-items from the *Self-Report Altruism* scale (Rushton et al., 1981). Each item described a prosocial behaviour, and participants indicated the frequency with which they enacted the behaviour in the past. Second, participants completed a *helping attitudes* scale (Fetzer Institute, n.d.; Nickell, 1998), consisting of 20 items assessing attitudes toward helping, helping intentions, and helping behaviour. Given that this scale is not entirely composed of behavioural measures, we interpret it as a proxy measure of one's likelihood to engage in prosocial behaviours. Third, participants completed 14 items assessing *organizational citizenship behaviours* (OCB; adapted from Hui et al., 1999, and

Table 6.

Summary of Study 4 Measures to Assess Prosocial and Antisocial Behaviours.

	Measure	$α_s$	Example Items	Response Range and Anchors
Prosocial Behaviours	Self-Report Altruism Scale (Rushton et al., 1981)	.88	I have given money to a charity; I have delayed an elevator and held the door open for a stranger	1 = never; 5 = very frequently
	Helping Attitudes Scale (Nickell, 1998)	.91	It feels wonderful to assist others in need; I donate time or money to charities every month	1 = disagree strongly; 5 = agree strongly
	OCB Scale (Hui et al., 1999; Podsakoff et al., 1990)	.91	I spend time helping others catch up when they have been absent I volunteer time to help others who have work related problems	1 = disagree strongly; 5 = agree strongly
	Volunteerism and donations Measure	.67	During the last 12 months, have you donated blood, plasma, or platelets? Are you an active member of either of the following types of organizations? (Humanitarian or charitable organization)	"Yes" or "No"
Antisocial Behaviours	Aggression Questionnaire (Buss & Perry, 1992)	.93	If somebody hits me, I hit back I have threatened people I know	1 = disagree strongly; 5 = agree strongly
	CWB-C (Spector et al., 2006)	.98	Purposely wasted your employer's materials/supplies Stole something belonging to someone at work	1 = never; 5 = every day
	Illicit Antisocial Behaviours Measure	.92	In the past 12 months, how often did you …steal something worth less than $50? … hurt someone badly enough in a physical fight that he or she needed care from a doctor or nurse?	Varied by item

Note. $α_s$ = standardized reliability alpha; OCB = organizational citizenship behaviour; CWB-C = counterproductive work behaviour checklist.

Podsakoff et al., 1990). OCBs are a form of prosocial behaviour directed towards improving the

functioning of a workplace. The items we used each describe behaviours that bring direct

benefits to organizations and co-workers. Individuals were instructed to report their behaviour

from either their current or last place of employment. Fourth, we included all seven prosocial

behaviour items used across Studies 1, 2, and 3 to measure *volunteerism and donations*.

     ***4.2.2.1. Antisocial behaviours*.** First, participants completed 21 items to indicate the

degree to which they displayed explicit behavioural *aggression* towards others (selected from

Buss & Perry, 1992). Second, participants responded to 39 items measuring *counterproductive*

work behaviours (CWBs; using items from the Counterproductive Work Behavior Checklist,

Spector et al., 2006). CWBs are defined as workplace behaviours that harm organizations or their

members (Dalal, 2005), and we only used items that referred explicitly to enacting antisocial

behaviours in the workplace. As with OCB, participants either reported on their current or last

employment. Third, we used ten items identical to those in Study 1 to measure *illicit antisocial*

behaviours.

     4.2.4. Creating aggregate measures.

     Finally, we created *aggregate measures* composed of all the items for self-focused

orientations (73 items; α_s = .96), other-focused orientations (77 items; α_s = .96), prosocial

behaviours (52 items; α_s =.94), and antisocial behaviours (70 items; α_s =.98). To obtain scores,

we applied our IRT scoring procedure to the items within each class of variables. Although these

aggregate measures do not allow us to examine heterogeneity between scales, they offer two

advantages. First, they are closer representations of our hypotheses regarding self- and other-

focused variables as higher-order individual difference variables. Second, aggregating across

instantiations of the predictor and outcome variables may lead to a more powerful test of their

association (Epstein, 1979; 1980).

4.3. Analyses and Results

4.3.1. Examining effects on each individual measure.

Table 7 presents the results of five SEM models using FIML, conducted with *lavaan* (Rosseel, 2012). Each model was computed according to the structural relations in Figure 1. Models 1 to 5 break the analyses down according to each measure of self- and other-focused orientations, and simultaneously predict each index of antisocial and prosocial behaviours. For example, Model 1 examines how assertiveness and compassion simultaneously predict the three indices of antisocial behaviours and the four indices of prosocial behaviours, while accounting for correlations between predictor variables and between outcome variables.

Table 7 reports 18 tests of the link between *self-focused orientations* and *antisocial behaviours* (H_1); of these, 9 were significant and positive, and the average standardized coefficient was .08. There were 24 tests of the link between *self-focused orientations* and *prosocial behaviours* (H_2); of these, 10 were significant and positive, and the average standardized coefficient was again .08. There were 18 tests of the link between *other-focused orientations* and *antisocial behaviours* (H_3); of these, 13 were significant and negative, and the average standardized coefficient was -.19. Finally, there were 24 tests of the link between *other-focused orientations* and *prosocial behaviours* (H_4); of these, 22 were significant and positive, and the average standardized coefficient was .31.

We can compare the relative effect sizes associated with self- and other-focused orientations in each model in Table 7. For instance, in Model 1, we can compare the effect sizes of assertiveness vs. compassion in predicting (1) aggression, (2) counter-productive work behaviours, and (3) illicit antisocial behaviours—in all three cases, the effect associated with

Table 7.

Standardized Parameter Estimates and Confidence Intervals from SEM Models Predicting Antisocial/Prosocial Behaviours from Motivational Orientations.

	Predictors	Predicting Antisocial Behaviours (H_1 & H_3)			Predicting Prosocial Behaviours (H_2 & H_4)			
		A	CWB	IAB	SRA	HA	OCB	VD
Model 1	1. Assertiveness	.073^t	-.031	**.129****	**.231****	.026	**.158****	**.170****
		[.000, .147]	[-.111, .048]	[.049, .210]	[.156, .307]	[-.035, .087]	[.088, .229]	[.402, .529]
	2. Compassion	**-.478****	**-.300****	**-.212****	**.255****	**.676****	**.465****	**.127****
		[-.543, -.413]	[-.377, -.224]	[-.291, -.132]	[.180, .330]	[.630, .721]	[.402, .529]	[.046, .207]
Model 2	1. Personal Focus Values	**.284****	.074	**.160****	.089^t	<u>-.085*</u>	**.114****	.051
		[.191, .377]	[-.028, .176]	[.056, .263]	[-.011, .188]	[-.163, -.008]	[.030, .198]	[-.054, .156]
	2. Social Focus Values	**-.570****	**-.339****	**-.203****	**.271****	**.732****	**.528****	.079
		[-.656, -.485]	[-.438, -.241]	[-.306, -.100]	[.174, .369]	[.668, .796]	[.451, .605]	[-.026, .184]
Model 3	1. Independent Self-Construal	<u>-.188**</u>	<u>-.235**</u>	.014	**.227****	**.272****	**.341****	.057
		[-.270, -.107]	[-.316, -.154]	[-.071, .100]	[.150, .304]	[.199, .346]	[.275, .408]	[-.028, .141]
	2. Interdependent Self-Construal	**-.101***	-.062	.028	**.247****	**.314****	**.383****	**.095***
		[-.183, -.018]	[-.145, .021]	[-.058, .113]	[.170, .324]	[.242, .386]	[.318, .449]	[.011, .180]
Model 4	1. Self-Interest	**.366****	**.166****	**.170****	-.031	<u>-.237**</u>	<u>-.092*</u>	.004
		[.272, .460]	[.065, .267]	[.068, .271]	[-.124, .062]	[-.327, -.147]	[-.177, -.007]	[-.097, .104]
	2. Other-Interest	**-.340****	**-.227****	-.074	**.451****	**.574****	**.614****	**.223****
		[-.434, -.245]	[-.327, -.126]	[-.176, .028]	[.364, .538]	[.493, .656]	[.540, .689]	[.125, .322]
Model 5	1. Power Motivation	**.488****	**.245****	**.263****	.012	<u>-.381**</u>	<u>-.207**</u>	.026
		[.390, .585]	[.136, .354]	[.154, .371]	[-.091, .114]	[-.469, -.294]	[-.295, -.119]	[-.083, .135]
	2. Achievement Motivation	<u>-.205**</u>	<u>-.168**</u>	-.104^t	**.207****	**.378****	**.446****	**.122***
		[-.302, -.107]	[-.273, -.063]	[-.209, .001]	[.110, .304]	[.296, .461]	[.365, .527]	[.018, .226]
	3. Affiliation Motivation	**-.162****	-.007	.025	**.165****	-.002	.089^t	**.202****
		[-.268, -.056]	[-.120, .107]	[-.089, .139]	[.060, .270]	[-.094, .089]	[-.002, .181]	[.091, .313]
	4. Intimacy Motivation	**-.159****	**-.136****	-.067	**.143****	**.461****	**.325****	-.025
		[-.254, -.064]	[-.238, -.034]	[-.169, .035]	[.049, .238]	[.383, .539]	[.245, .406]	[-.126, .076]

Note. $^t p < .10$; *$p < .05$; **$p < .01$. A = Aggression; CWB = Counterproductive Work Behaviours; IAB = Illicit Antisocial Behaviours; SRA = Self-Report Altruism; HA = Helping Attitudes; OCB = Organization Citizenship Behaviours; VD = Volunteerism and Donations. Significant estimates in hypothesized direction are **bolded**; significant estimates counter to hypothesized direction are <u>underlined</u>. Grey font indicates non-significant effects. Models are just-identified, so fit indices are not reported. Covariance estimates between predictors in each model (H_7) average around .426, whereas average covariance between indicators of prosocial/antisocial behaviours (H_8) is -.017. Each predictor and outcome measure was scored using a two-parameter item-response theory (IRT) model.
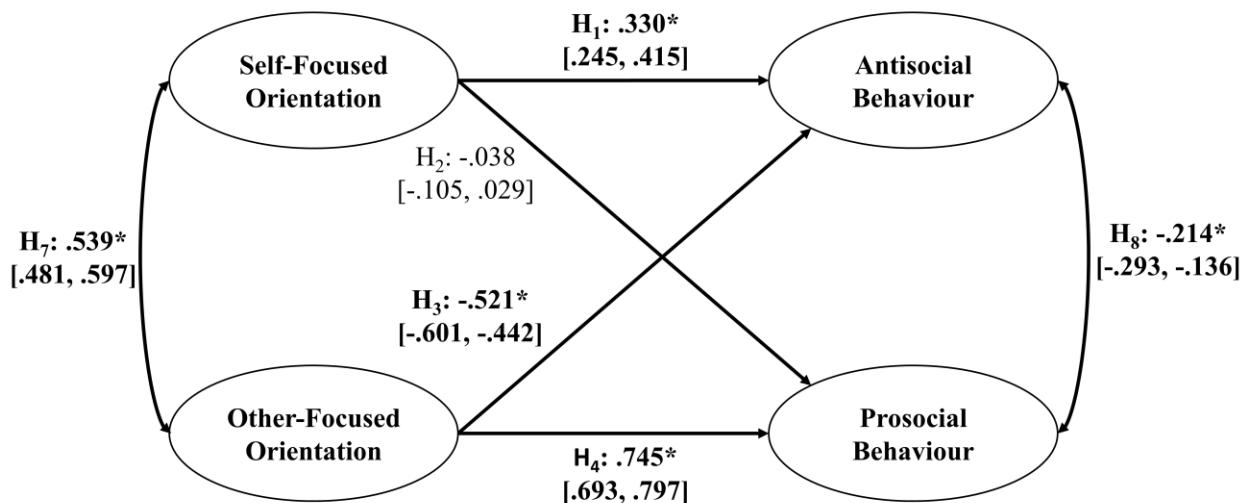
compassion was significantly more negative than that associated with assertiveness. Models 2, 3, and 4 each provide three similar comparisons (one per indicator of antisocial behaviours), and Model 5 provides 12 comparisons (i.e., for each indicator, we can compare the effects of: power vs. affiliation, power vs. intimacy, achievement vs. power, and achievement vs. intimacy). Doing this across all five models, 24 pathway pairs can be used to evaluate the relative strength of self- versus other-focused orientations in accounting for antisocial behaviours (H_5). When predicting antisocial behaviours, other-focused orientations had a significantly more negative association than self-focused orientations 15 times, and a significantly less negative associations only once (i.e., in Model 3, independent self-construal has a significantly more negative effect than interdependent self-construal in predicting counterproductive work behaviours). When predicting prosocial behaviours, we can compare 32 pathway pairs (H_6). Other-focused orientations were significantly more positively associated with prosocial behaviours in 12 comparisons, and significantly less positively associated in only 2 comparisons.

To evaluate H_7, we compared 36 correlations between self- and other-focused orientation measures. The average correlation was .34 (range of -.16 to .63; with 22 correlations being between .2 and .5). To evaluate H_8, we compared 12 correlations between prosocial and antisocial behaviour indices. The average correlation was -.08 (range of -.46 to .15; with 7 correlations between 0 and -.5).

4.3.2. Examining effects using the four aggregate measures.

A sixth SEM model (again using FIML) examined the association between our four aggregate measures, and was specified exactly according to Figure 1. The results are presented in Figure 3. Self-focused orientations had a significant positive association with antisocial

behaviours (H_1) but not with prosocial behaviours (H_2). In contrast, other-focused orientations

had a significant negative association with antisocial behaviours (H_3) and a significant positive

association with prosocial behaviours (H_4). The effects associated with other-focused

orientations were significantly larger in magnitude than the effects associated with self-focused

orientations (H_5 and H_6). Finally, examining bivariate correlations reveals that self- and other-

focused orientations were significantly positively associated ($r = .54$; H_7), and

antisocial/prosocial behaviours were significantly negatively associated ($r = -.39$; H_8).
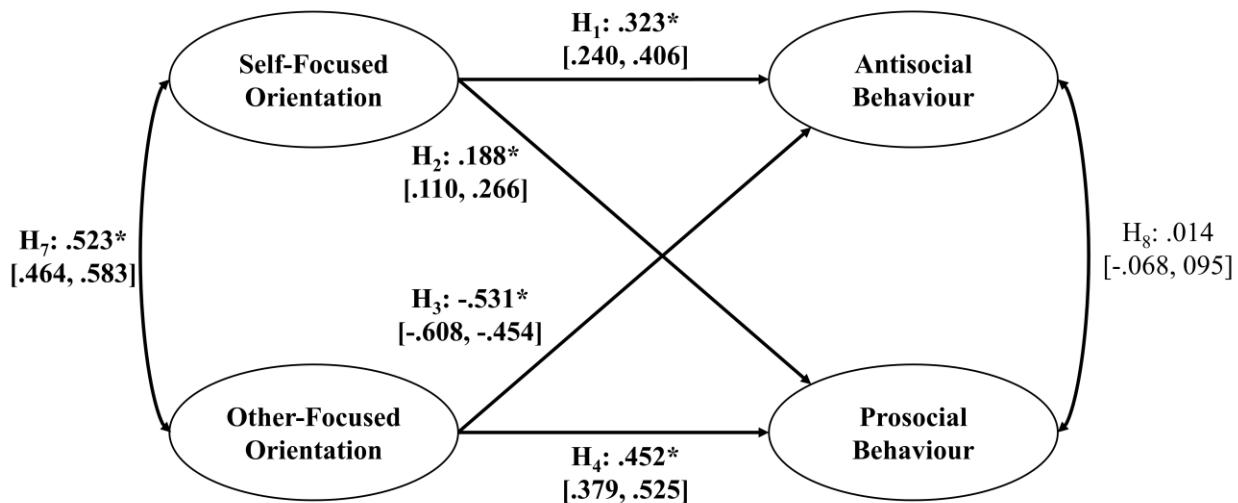

Figure 3. Structural equation model aggregating indices of each variable type. Confidence intervals for structural portion of the model are presented in the square brackets. For the structural paths, an asterisk (*) indicates a p value below .001. Model was just-identified, so model fit indices are not reported. Each predictor and outcome measure was scored by applying a two-parameter item-response theory (IRT) model to all items of a given construct type.

4.3.3. Alternate analyses to evaluate robustness of findings.

When conducting Study 4, we generally opted to retain items from existing measures

(e.g., we used the full interdependence self-construal scale as developed by Singelis, 1994) to

allow for our findings to be comparable to other studies using the same measures. However, a

limitation of this approach is that several items used to assess people's motivational orientations

were indicators of antisocial or prosocial behaviours/intentions (e.g., "I would offer my seat in a

bus to an authority figure" in the interdependent self-construal measure), and certain items used

to assess prosocial/antisocial outcomes may be more reflective of motivational orientations (e.g.,

"It feels wonderful to assist others in need" in the helping attitudes measure).

To address these issues, we ran additional analyses removing all such items (45 items in

total). Figure 4 gives a sample of the results by presenting the SEM model that examined the link

between the aggregate measures constructed from the revised scales. Other results are presented

in full in our supplemental materials (Section 4, including Tables S29-S32 and Figure S9).

Generally, our inferences remain unchanged across these analyses. Differences in our findings

included: (1) the association between various self-focused orientations and prosocial behaviours

became more positive, in line with H_2; (2) the association between various other-focused

orientations and prosocial behaviours declined in magnitude but was still typically significant

and positive, in line with H_4, and; (3) the association between prosocial and antisocial behaviours

was reduced, compared to H_8.

Figure 4. Structural equation model aggregating indices of each variable type, using an alternate selection of items to reflect each construct (i.e., removing 45 items to ensure predictors and outcomes were maximally differentiated). Confidence intervals for structural portion of the model are presented in the square brackets. For the structural paths, an asterisk (*) indicates a p value below .001. Model was just-identified, so model fit indices are not reported. Each predictor and outcome measure was scored by applying a two-parameter item-response theory (IRT) model to all items of a given construct type.

4.4. Discussion

The goals of Study 4 were to examine: (1) the overall pattern of associations that emerge across different indicators of each of our variables, and (2) the degree to which these associations vary depending on the specific measures/operationalizations we use. In this study, we also aimed to use more reliable measures of each of our constructs by relying heavily on well-established measures. The resulting high reliability of the scales (average α_s = .89) helps us gain confidence in our findings. How did our hypotheses fare in Study 4?

Our findings provide support for H$_1$ such that *self-focused orientations* tended to be positively associated with *antisocial behaviours*, and our aggregate measures also showed a moderate positive association with antisocial behaviours. However, when examining specific types of self-focused orientations, heterogeneity was observed such that certain indicators showed no effects (e.g., assertiveness was not associated with aggression or CWB), and some even showed negative associations (e.g., independent self-construal was negatively associated with aggression and CWB).

Our results provide mixed support for H$_2$: *Self-focused orientations* were indeed more frequently positively (rather than negatively) associated with *prosocial behaviours*, but there was a fair amount of heterogeneity in this association. Also, the aggregate measures showed a non-significant association.

Exploring the heterogeneity in the above findings, we note that more abstract constructs such as agency and personal focus values, along with our aggregate index of self-focused orientation, each showed patterns largely in line with our hypotheses. As expected, most deviations from our hypotheses were observed when looking at specific lower-order constructs (e.g., self-construal). Examining these deviations could provide insights into subclasses of self-

focused orientations. For example, independent self-construal and achievement motivation both had negative associations with antisocial behaviours and positive associations with prosocial behaviours. This pattern may suggest that self-focused orientations directed towards goals such as achieving competence, autonomy, and growth, may be more adaptive than other forms of self-focused orientations. In contrast, indicators of self-interest and power motivation had clear positive associations with antisocial behaviours and negative associations with prosocial behaviours, suggesting that orientations tied to competitive and power-driven themes may be associated with greater engagement in detrimental social behaviours.

In comparison to the effects associated with self-focused orientations, the effects associated with other-focused orientations were considerably less heterogeneous. *Other-focused orientations* had mostly negative associations with *antisocial behaviour* indices, and almost entirely positive associations with *prosocial behaviours*. This pattern of results provides clear support for H$_3$ and H$_4$.

We also found support for H$_5$ and H$_6$. The associations between *other-focused orientations* and *prosocial/antisocial behaviours* were indeed typically significantly larger (in the expected direction) than the associations between indices of *self-focused orientations* and *prosocial/antisocial behaviours*. On average, without aggregating, the effect sizes associated with other-focused orientations were moderate in magnitude (standardized coefficients around .2 to .3), whereas the average effect sizes associated with self-focused orientations were small (around .1). Hypotheses H$_5$ and H$_6$ were also supported when using aggregate measures.

Finally, in line with H$_7$, we found *self- and other-focused orientations* to be generally moderately positively associated (average $r = .34$). The association between *antisocial and prosocial behaviours* was, on average, small and negative, but varied highly across

operationalizations (ranging between $r = -.46$ to $.39$). Given this heterogeneity, Study 4 provides mixed support for H_8.

5. General Discussion

In this project, we examined the extent to which self- and other-focused orientations predict prosocial and antisocial outcomes similarly or differently across four samples that collectively represent a wide range of demographics (e.g., age, nationality). In addition, we used multiple operationalizations of our key constructs to test the independent and combined effects of various measures. We synthesize the results of Studies 1 through 4 and discuss implications for our findings. Table 8 provides an overview of the findings and our overall conclusions.

5.1. How do Self-Focused Orientations Relate to Prosocial and Antisocial Behaviours (H_1-H_2)?

Across our studies, we find consistent support for a general positive association between self-focused orientations and antisocial behaviours (H_1). On average, this occurred both cross-nationally and across construct operationalizations, but there was a decent amount of heterogeneity in effect sizes across operationalizations of self-focused orientations. We also found that self-focused orientations were, in general, positively associated with prosocial behaviours (H_2), but this association was more variable cross-nationally (Studies 2 and 3; see Figures 2 and S8) and across different types of indicators (Study 4) than the association between self-focused orientations and antisocial behaviours.

Overall, the implication is that self-focused orientations may generally positively predict both antisocial and prosocial behaviours, or at least positively predict antisocial (but not consistently prosocial) behaviours. Either pattern makes them risky targets for interventions, especially if one seeks to increase prosocial behaviours by increasing self-focused orientations.

Table 8.
Synthesis of Findings from the Four Studies.

		Hypotheses							
		H_1	**H_2**	**H_3**	**H_4**	**H_5**	**H_6**	**H_7**	**H_8**
	Outcome(s)	AB	PB	AB	PB	AB	PB	OFO/SFO	AB/PB
	Predictor(s)	SFO	SFO	OFO	OFO	SFO/OFO	SFO/OFO		
	Hypothesized Effect	Positive	Positive	Negative	Positive	$H_3 > H_1$	$H_4 > H_2$	$.2 > r < .5^a$	$0 > r > -.5$
	Evidence Type	Est.	Est.	Est.	Est.	$H_3 : H_1$	$H_4 : H_2$	r	r
Study 1	Effects	.12*	.17*	-0.19*	.11	1.6[b]	0.64[b]	<u>.59*</u>	<u>.08*</u>
Study 2	Fixed Effect	.13*	.05	-.21*	.33*	1.6*[b]	6.9*[b]	.29*	-.00
	% Countries with predicted effect[c]	96	67	98	100				
Study 3	Fixed Effect	.08*	.15*	-.19*	.24*	2.3*[b]	1.6*[b]	.36*	<u>.08*</u>
	% Countries with effect[c]	85	78	100	88				
Study 4	Average Effect of Indices[d]	.08[d]	.08[d]	-.19[d]	.31[d]	2.4[d]	3.9[d]	.34[d]	-.08[d]
	% supporting tests[e]	50	42	72	92	63	38	61[f]	58[g]
	Aggregate measures[f]	.33*	-.04	-.52*	.75*	1.6*[b]	19.6*[b]	<u>.54*</u>	-.39*
Conclusions		Strong Support (H_1)	Moderate Support (H_2)	Strong Support (H_3)	Strong Support (H_4)	Strong Support (H_5)	Strong Support (H_6)	Moderate Support (H_7)	Mixed Support (H_8)

Note. *Significant effect. **Bold** font = supports hypothesis. <u>Underlined</u> font = conflicts with hypothesis. Grey font = neither in clear support nor contradiction with hypothesis. H = hypothesis; AB = antisocial behaviour; PB = prosocial behaviour; SFO = self-focused orientations; OFO = other-focused orientations; r = Pearson's bivariate correlation; Est. = standardized regression coefficient.
[a]This range of correlations was selected to exclude correlations that were either small (i.e., $r < .2$) or large (i.e., $> .5$).
[b]Ratio of the effect size of H_1 to H_3 (or H_2 to H_4). Significance level is determined by looking for overlapping confidence intervals.
[c]Under the null hypothesis, the percentages are expected to be 50%.
[d]Because these are average effects of parameters across several statistical models, statistical significance varies across models.
[e]Represents the number of tests for which a significant finding was found in the hypothesized direction.
[f]Percent of 36 correlations between .2 and .5. Range = -.16 to .63; 22% were below .2, and 17% above .5.
[g]Percent of 12 correlations between .0 and -.5. Range = -.46. to .15. 42% were positive in value but tended to be very small. Consequently, the distribution is likely centred around the high end of our hypothesized range in Study 4 (i.e., between $r = 0$ and -.1).
[f]Analyses involve latent variables derived from all items used to measure the four construct types. See Section 4.3.2 and Figure 3.

In such a case, our results suggest mixed evidence this would successfully increase prosocial behaviours and suggest a threat of unintentionally increasing antisocial behaviours. This is important given the current prevalence of wide-scale movements focused on promoting self-focused orientations such as self-care, self-empowerment, and self-esteem (e.g., Baumeister et al., 2003; Silva, 2017; Warren, 1996). Consistent with the cautions of others (Baumeister et al., 2003), our findings reassert a risk for the blanket promotion of self-focused orientations to inadvertently increase antisocial behaviours.

In contrast, we can also consider creating interventions that seek to decrease antisocial behaviours by reducing self-focused orientations, but there remains risks this could unintentionally reduce prosocial behaviours. Consequently, general caution should be used when intervening on self-focused orientations, and interventionists should carefully evaluate impacts on both prosocial *and* antisocial behaviours.

Lastly, the degree of heterogeneity in our findings is notable, as it suggests the associations of self-focused orientations may not always follow the same trend. Future works should examine when and why the associations between self-focused orientations and prosocial/antisocial outcomes are positive versus negative—perhaps examining whether certain socio-political or cultural factors can account for cross-national differences in the association between the two types of behaviours.

In examining heterogeneity, it may be particularly useful to divide self-focused orientations into more specific subclasses. For example, one class may incorporate orientations focused on skill-building, personal mastery, self-improvement, and autonomy seeking. Each of these reflect a theme of "self-growth," contribute to well-adjusted psychological development (Ryan & Deci, 2000; Dweck, 2008; Reis et al., 2000) and may be closely linked to certain

altruistically focused tendencies. Indeed, in Schwartz's theory of values, self-direction values most directly capture these themes and are considered adjacent to self-transcendent values (e.g., universalism; Schwartz et al., 2012b). Further, personality maturation usually involves a shift towards becoming more other-focused over time (Bleidorn, 2015; Gouveia et al., 2015; Milfont et al., 2016; Walker & Frimer, 2015), so it may be a natural extension of desires for personal growth to become a better, more altruistic individual. In our own studies, the self-focused orientations of achievement motivation and independent self-construal both reflect this category of self-focused orientations, and both showed adaptive patterns of associations whereby they predicted decreased antisocial behaviours and increased prosocial behaviours.

In direct contrast to this category, some self-focused orientations are more directly tied to acquiring resources, status, and dominance over others; that is, enhancing one's position within society, without seeking personal growth. This category may be generally associated with worse interpersonal outcomes. For example, self-interest and power motivation, as assessed in Study 4, each reflect these themes heavily and show clear positive associations to antisocial behaviour, along with clear negative associations to prosocial behaviour. These findings make sense when we consider that this category of self-focused orientations may be furthest from seeking the welfare of others. For example, in Schwartz's theory of values (Schwartz et al., 2012b), this category is best reflected in the values of power and achievement—the latter of which should not be likened to our measure of achievement motivation (akin to self-direction) and is conceptually closer to our measure of self-interest (both focus on achieving social markers of success). Importantly, such values are understood to be conceptually furthest from values such as self-transcendence (Schwartz et al., 2012b).

5.2. How do Other-Focused Orientations Relate to Prosocial and Antisocial Behaviours

(H₃-H₄)?

Across all our studies, other-focused orientations had clear and consistent positive associations with prosocial behaviours, and clear and consistent negative associations with antisocial behaviours (supporting H₃ and H₄). These patterns were highly homogenous across countries (Studies 2 & 3) and when considering different indices of other-focused orientations and behaviours (Study 4). The small amount of heterogeneity we found in these patterns may suggest that other-focused orientations are a more homogeneous class of variables relative to self-focused orientations, at least in their associations to prosocial/antisocial behaviours.

Conceptually, however, just as self-focused motivations can be broken down into distinct categories, a similar dynamic could be present for other-focused orientations. Notably, we can draw a distinction between orientations that are inherently concerned with the wellbeing of others (e.g., compassion, self-transcendence values, other-interest; DeYoung et al., 2007; Gerbasi & Prentice, 2013; Schwartz et al., 2012b) and those that are more concerned with interpersonal relationships and maintaining social cohesion (e.g., collectivism, conformity/tradition values, affiliation motivations; Hui & Triandis, 1986; Schönbrodt & Gerstenberg, 2012; Schwartz et al., 2012b). Although prosocial/antisocial behaviours can reflect ends for both categories (e.g., prosocial acts are essential to maintain orderly society and build deep interpersonal connections), this reasoning may be particularly true for the former, as acting prosocially/antisocially is often tantamount with impacting the welfare of others. Thus, we could expect that prosocial and antisocial behaviours would be most consistently and powerfully linked to this first category, and this is borne out in the pattern of results from Study 4. For instance, compassion and other-interest show consistent and substantial positive and negative associations to prosocial and antisocial behaviours; in contrast, factors like interdependent self-construal and

affiliation motivation show effects in the same direction, but these are smaller and less frequently significant.

Overall, interventions focused on increasing other-focused orientations may generally be promising in promoting prosocial behaviours while inhibiting antisocial behaviours. This may be particularly true of orientations that are inherently focused on the wellbeing of others. Currently, however, fewer social movements and programs focus on promoting other-focused than self-focused orientations. Given the possible risks of targeting self-focused orientations, there are likely to be benefits from devoting additional resources to develop and promote interventions to promote other-focused orientations (e.g., compassion-based training; Weng et al., 2013).

5.3. Which Orientation has a Stronger Association with Prosocial and Antisocial Behaviours (H$_5$-H$_6$)?

Hypotheses H$_5$ and H$_6$ state that prosocial and antisocial behaviours should be more strongly associated with other-focused than self-focused orientations. Unfortunately Study 1 was largely uninformative due to very large CIs. However, in studies 2, 3, and 4, the effects associated with other-focused orientations were consistently greater in magnitude on both prosocial and antisocial outcomes than the effects associated with self-focused orientations (supporting both H$_5$ and H$_6$).

These findings reinforce the suggestion that other-focused orientations might be more efficient targets for interventions than self-focused orientations. They also reinforce the notion that prosocial/antisocial behaviours are often more central to other-focused goals (i.e., are ends of themselves) than they are to self-focused orientations (to which they may only be means to achieving self-focused goals). That said, it is important to note that the ends-means distinction may reflect a dynamic continuum between these variables rather than a fixed dichotomy, and that

the status of a behaviour can shift across contexts and time, depending on people's perceptions.

For example, prosocial behaviours in the workplace (i.e., OCB) have been consistently linked to improved workplace performance by employees and their teams (Podsakoff et al., 2009), an outcome that aligns with self-focused goals like career and achievement motivations. Although engaging in OCBs does not guarantee performance, the repeated observation of improved performance arising from OCBs could lead individuals to form strong mental associations between OCBs and fulfilling their career/achievement goals. Over time, this association may lead them to begin perceiving OCBs as tantamount to (i.e., perceiving them as ends for) the pursuit of career/achievement through a process of means-goal fusion (Kruglanski et al., 2018). This may explain why, in Study 4, achievement motivation showed its strongest association to the outcome of OCB. A similar dynamic may also be at play to account for the strong association (in Study 4) between power motivation and aggression. Indeed, aggression is often understood as a method through which individuals express or seek power, and longitudinal studies have found power motivations and aggression to be mutually reinforcing (Benish-Weisman, 2015).

As implied previously, similar variations may also be at play for other-focused orientations. For example, we argued that most other-focused orientations are concerned with the welfare of others, and that this would lead prosocial behaviours to be pursued as ends. However, some constructs, like affiliation motives, are instead centrally concerned with building/maintaining (often surface-level) interpersonal relationships. For fulfilling these orientations, prosocial acts may serve more as means than ends, and this could account for how affiliation generally showed smaller associations to prosocial behaviour than other constructs.

Theoretically, the degree to which behaviours are used and perceived as means versus

ends to achieve motivational goals may be a useful lens to understanding and predicting how different variables (even outside our studies) relate to social behaviour. For instance, we can apply this lens to the distinction between empathy and compassion, two states which predict prosocial behaviour, but through distinct motivational dynamics. On the one hand, empathy allows individuals to experience the emotions of others (Gilbert, 2015); from this, individuals often engage in prosocial behaviours as means to alleviate their own negative affect (Cialdini et al., 1987) or to increase their own positive affect (Telle & Pfister, 2016), both of which are self-focused goals. On the other hand, compassion is an other-focused motivation, fundamentally concerned with caring for others (Gilbert, 2015); as such, prosocial acts may usually be ends to fulfil compassion. Consequently, we may predict that compassion is a stronger, more consistent, predictor of prosocial behaviour than empathy—an assertion that does have empirical backing (Chierchia & Singer 2017).

5.4. What is the Average Association Between Self-Focused and Other-Focused Orientations (H₇), and Between Prosocial and Antisocial Behaviours (H₇-H₈)?

It is well-established that self- and other-focused orientations are two distinct dimensions (De Dreu & Nauta, 2009; Markus & Kitayama, 1991); however, the average association between them remains to be fully ascertained, with researchers commonly reporting associations anywhere between $r = 0$ to $r = .5$ (e.g., DeYoung et al., 2007; Gerbasi & Prentice, 2013; Singelis 1994). In our findings, the correlations between measures of self- and other-focused orientations were generally in the range of .2 to .5 (H₇), with the overall average across tests being around $r = .35$. There was a decent amount of spread, but correlations spread relatively evenly above and below our expected range. These associations are in line with ideas that self-focused and other-focused orientations can be mutually supportive, as well as with the idea that a general

motivational factor—reflecting a general disposition to act in a goal-directed way—may contribute positively to both orientations (supporting views by authors such as: Batey et al., 2011; Borg & Bardi, 2016; Gunnell & Gaudreau, 2015).

However, it is also possible that the positive correlation between the two orientations could be accounted for by response biases (e.g., acquiescence bias, social desirability) or some other common-method bias (i.e., all measures being self-reports). To examine this possibility, we used data from studies 1 and 4 to compute alternate SEM analyses (bi-factor models: e.g., Biderman et al., 2011; Gu et al., 2015; Motl & DiStefano, 2002) in which a general factor was added between all item-level indicators of self-focused and other-focused orientations. These models are reported in Section 5 of the supplemental materials. Our inferences remained largely unchanged. The two motivational orientations remained correlated at a similar magnitude (H_7), not only supporting our hypotheses but also the possible operation of a general motivational factor. Further the associations between the two motivational orientations and prosocial/antisocial behaviours (H_1 to H_4) also remained similar across analyses, providing evidence that our findings are not reducible to response/methods-based biases. That said, given that our analyses still rely on self-reports, future research should evaluate these findings using alternate methods such as informant reports.

The idea that a general factor of motivation may exist is of particular interest to explore further as it relates to many discussions and debates that have spanned years in the personality domain surrounding the presence/absence of higher order factors (Bäckström et al., 2009; Chang et al., 2012; DeYoung 2015; Digman, 1997; Musek, 2007; Rushton et al., 2008; Van der Linden et al., 2010). Given that most broad personality traits like the Big 5 have motivational substrates (e.g., openness reflects dispositions towards gaining knowledge/experiences, and the Big 2

[agency/communion] are explicitly self- and other-focused orientations), it may be fruitful to examine whether correlations between broad traits arise due to a combination of a general *motivational* factor (e.g., accounting for covariance between motivationally-framed items) and methods factors (e.g., response biases accounting for more general covariance). In line with this idea, frameworks that posit two higher-order factors within the Big 5 often attribute explicitly motivational elements to such factors (e.g., pursuing *stability* [status quo] vs. *plasticity* [i.e., change]; DeYoung, 2015; DeYoung et al., 2002).

Finally, in our studies, the correlations between prosocial and antisocial behaviours ranged between -.46 and .15, with an overall average across tests just above $r = -.10$. Most correlations were negative, but several were positive (although small). Given this spread of effect sizes, the typical association between these two types of behaviours may either be nil or at the low end of our anticipated range (i.e., r between 0 and -.10). These results support the view that prosocial and antisocial behaviours should generally be treated as distinct rather than opposing factors—a conclusion in line with the works of many authors that precede us (Eron & Huesmann, 1984; Card et al., 2008; Dalal, 2005; Duncan et al., 2002; Harris et al., 1996; Krueger et al., 2001).

5.5. How Might Self-Focused and Other-Focused Orientations Affect Other Types of Behaviours?

Our studies used measures that categorize behaviours as either prosocial or antisocial. However, our operational definitions of the two types of behaviours are not mutually exclusive; a behaviour could feasibly be *both* prosocial and antisocial. Behaviours at the intersection of prosociality and antisociality may be especially interesting domains for future research. For instance, consider people doing an action that harms members of an outgroup to help members of

an ingroup. Here, we might expect a positive association with self-focused orientations (as ingroups are likely to reward their successful members), but the association with other-focused orientations may be more nuanced and varied according to the specific type of other-focused orientation considered. For example, orientations towards benefitting close others and ingroup members (e.g., collectivistic inclinations, intimacy motivations) could lead people to engage in such behaviours more frequently. Indeed, collectivistic values can accentuate ingroup-outgroup divides (Triandis, 1995), and biological processes tied to building/maintaining close relationships, such as the operation of oxytocin (Aguilar-Raab et al., 2019), similarly lead to both ingroup favouritism and outgroup competition/aggression (De Dreu, 2012; De Dreu et al., 2012). In contrast, other-focused orientations like self-transcendent values are associated with lower prejudice/discrimination towards outgroups (Feather & McKee, 2008; Zibenberg, & Kupermintz, 2016) and may lead people to withhold from such actions. For other behaviours at the intersection of prosociality/antisociality the reverse pattern may emerge. For example, we could expect extreme social activism to be promoted by a strong motivation for fairness, but inhibited by motives tied to maintaining social norms.

When behaviours have both prosocial and antisocial consequences, the time frame of the consequences could be another productive area to explore. For example, parents engaging in strict discipline, or having their children vaccinated, accept to commit short-terms harms (e.g., a harsh punishment, a painful shot) to achieve long-term benefits (e.g., good socialization, immunity to disease). Such behaviours are typically motivated by altruistic concerns for one's child. However, altruistic motives can also inhibit such behaviours. For example, wanting to protect children from the pain associated with getting shot-based vaccines is a common barrier to vaccination, even among parents who are aware of the long-term benefits (Mills et al., 2005).

Future research should therefore clarify the pattern of associations between motivational orientations and behaviours that have both prosocial and antisocial elements.

In addition, it is worth considering how behaviours impact the self. That is, in addition to being defined in terms of benefits towards others (prosocial) and harms towards others (antisocial), behaviours can also be defined according to the degree to which they benefit ("pro-self" behaviours) and harm the self ("anti-self" behaviours). Generally, our hypotheses rested upon the idea that prosocial and antisocial behaviours are *end goals* for other-focused orientations, but usually *means* towards self-focused goals. If a similar logic holds generally, we could expect complementary associations for behaviours that obtain/avoid outcomes for the self. Specifically, people with high self-focused orientations should seek to engage in more frequent behaviours that benefit them personally, but fewer behaviours that are personally costly (both are ends to self-focused goals). People with high other-focused orientations, however, may engage in both types of behaviours to the extent that they can use these behaviours to increase benefits (or decrease harms) for others around them (i.e., use the behaviours as means). These ideas could be examined in future research and would have important implications for interventions and clinical work.

5.6. What Might Interventions to Target Self-Focused and Other-Focused Orientations Look Like?

Interventionists can employ different strategies to target self-focused and other-focused orientations to alter rates of prosocial and antisocial behaviours. They may seek to alter people's motivations, leverage pre-existing individual differences, or engage in a combination of these strategies. When choosing a strategy, interventionists should be mindful of the degree to which many motivational orientations are chronic individual differences.

For instance, differences in basic personality traits (e.g., communion and agency) and values (e.g., social-focus and personal-focus values) are each chronic and relatively stable individual differences (Vecchione et al., 2016; Wright et al., 2012). This may make them challenging targets for change, especially as people age. Consequently, interventions targeting trait-level individual differences could focus their efforts on earlier life stages (e.g., childhood) when personality and values are more malleable (Caspi et al., 2005; Roberts & DelVecchio, 2000). That said, there is still substantial amounts of personality change that occurs throughout the lifespan (Caspi et al., 2005) and there is a growing literature on the development of clinical and digital interventions that can exert long-lasting change on personality among adults (Magidson et al., 2014; Roberts et al., 2017; Stieger et al., 2021). Interventionists with the means to deploy such interventions should consider them. In doing so, it may be worth exploring whether increasing chronic levels of other-focused orientations may be easier to accomplish than altering levels of self-focused orientations, as the former aligns with normal processes of maturation whereby people become more other-focused as they age (Bleidorn, 2015; Gouveia et al., 2015; Milfont et al., 2016; Walker & Frimer, 2015).

Yet, there are also alternate strategies to directly targeting chronic, trait-level dispositions. Most chronic individual differences (e.g., personality traits) reflect long-standing averages with substantial levels of within-person variation (i.e., state-level change) across time and situations (Fleeson, 2001; 2007; Fleeson & Jayawickreme, 2015; Jayawickreme et al., 2019). This variation has been largely attributed to fluctuations in daily goals and lower-order motivations (Church et al., 2013; Heller et al., 2007; McCabe & Fleeson, 2012); consequently, using interventions to alter state-level motivations could be a feasible strategy over targeting trait-level constructs. Indeed, altering situations (e.g., via goal priming) to elicit state-level

changes in personality, values, and goals is a well-documented strategy (Moskowitz & Gesundheit, 2009; McNiel & Fleeson, 2019), and has been previously applied to understand and change both prosocial and antisocial behaviours (de Medeiros & Hattori, 2021; Joyal-Desmarais et al., 2022; Todorov & Bargh, 2002). Situational interventions are thus promising and could be deployed to target larger numbers of individuals at a time (e.g., targeting all who interact with a given space). It has also been theorized that the repeated activation of states (e.g., other-focused goals) should contribute to long lasting change in associated traits over time (e.g., overall communion or social focus values; Bardi & Goodwin, 2011). This proposition has important implications and should be explored in future empirical works.

Finally, another type of strategy interventionists can consider is to appeal to individuals' pre-existing motivations (rather than changing people's motivations) to influence rates of prosocial and antisocial behaviours. For instance, motivational message matching research holds that people are more likely to be persuaded to change their beliefs and behaviours when persuasive messages are constructed in ways that match (vs. mismatch) their personal values and motivations (Joyal-Desmarais, 2020; Joyal-Desmarais et al., 2022). This technique has been applied in many domains, such as encouraging volunteerism (e.g., Clary & Snyder, 1999), proenvironmental behaviours (e.g., Graham & Abrahamse, 2017), and political decisions (e.g., Feinberg & Willer, 2015). A recent systematic review and meta-analysis found that most types of behaviours can be changed using motivational message matching, with effects sometimes persisting for months after an intervention (Joyal-Desmarais et al., 2022). Behavioural maintenance has also been argued to follow a similar principle, with people being more likely to continue engaging in a behaviour (e.g., volunteerism) to the extent that the behaviour reinforces their specific motivational preferences (Clary et al., 1992; 1998). For example, an other-focused

person may be more likely to maintain their volunteerism to the degree that they see benefits for others arising from their actions. Although the goal of motivational matching interventions is not generally to alter motivational orientations, there is growing theoretical and empirical works to suggest that the repeated satisfaction of motivations leads to a reinforcement of those motivations over time (e.g., Baumeister, 2016; Burkley et al., 2013; Prentice et al., 2019; Vohs & Baumeister, 2008). For example, the more wealth and status people have, the more wealth and status they seek (Wang et al., 2018). Consequently, interventionists using motivational matching principles should still be weary of the unintended consequences the repeated enactment of such interventions could have over time.

5.7. Should Indices of Self-Focused and Other-Focused Orientations be Used Interchangeably?

In this project, we argued that self-focused and other-focused orientations represent two higher order categories of motivation. We discussed literature (encapsulated in Table A1) which documents associations between self-focused and other-focused constructs from different frameworks (e.g., the Interpersonal Circumplex, basic values, self-construal), and noted that authors have frequently used measures from these frameworks as interchangeable indicators of these two broader motivational categories (e.g., Abele & Wojciszke, 2014; Miyamoto et al., 2018; Trapnell & Paulhus, 2012). Our findings, particularly from Study 4, provide important insights to this perspective.

For example, if measures of self-focused orientations assess a common construct (a general self-focused orientation), then these measures should be more highly correlated with one another than to measures of other-focused orientations. Similarly, if measures of other-focused orientations assess a common construct (a general other-focused orientation), then these

measures should be more highly correlated with one another than to measures of self-focused

orientations. This follows the logic of multitrait-multimethod matrices (Campbell & Fiske,

1959). Correlations between measures of the same category are presented in the lower diagonal

of Table A1; from these, we see that the average correlations among self-focused measures and

among other-focused measures are both large ($r = .53$ and $.50$, respectively). In contrast, the

average correlation *across* self-focused and other-focused measures is moderate ($r = .34$; see

Table S28)—this latter correlation may actually be overestimated as many pairs of self-focused

and other-focused constructs were assessed using the same instrument and may share additional

methods variance (e.g., interdependent and independent self-construal were both assessed using

the measure by Singelis, 1994). These findings support the notion that each construct can

effectively be used to tap into higher-order differences in self-focused and other-focused

orientations. Further, despite heterogeneous findings for how specific operationalizations of self-

focused orientations relate to antisocial and prosocial behaviours, there is a greater tendency for

the patterns to converge (than diverge) with each other and with the aggregate measures. For

example, each operationalization in Study 4 show more findings in line with our predictions than

counter to them. An implied benefit of this observation is that patterns at the level of high-level

self- and other-focused orientations should theoretically offer value in predicting lower order

constructs, extending beyond the set included in a given project. For instance, theories of

motivation (e.g., Self-Determination Theory, Maslow's Hierarchy of Needs, the Fundamental

Social Motives Framework; Maslow, 1954; Neel et al., 2016; Ryan & Deci, 2000) offer a

plethora of ways to operationalize self-focused (e.g., needs for autonomy, competence, or self-

esteem; motives for self-protection or status) and other-focused orientations (e.g., needs for

relatedness or love; motives for kin care) that extend beyond the current studies. The patterns we

observe could reasonably be expected to inform our understanding of such unmeasured variables—that is, on average, and future work will benefit from establishing the robustness of this generalizability.

Lastly, as we anticipated from work on the bandwidth-fidelity trade-off (Ones & Viswesvaran, 1996; Soto & John, 2017), our aggregate measures of self- and other-focused orientations generally show the clearest and most robust associations in predicting prosocial and antisocial behaviours (e.g., Table 8; Supplemental Table S27). Taken together, this empirical evidence supports the use and benefits of operationalizing self- and other-focused motivations at a high-level manner—supplementing theoretical reasons to regroup motivations based on shared concerns focused on the self versus others (Abele & Wojciszke, 2007).

On the whole, our findings suggest that using a wide breath of lower-order measures can reliably indicate high-level self-focused and other-focused tendencies. Yet, does this also mean that each measure, or "lower-order" construct, within a category (e.g., self-focused) can be used interchangeably to assess one another (e.g., using independent self-construal as an index of assertiveness)? Probably not. Despite this being common in past research, our findings are critical of this practice and suggest that authors should generally avoid using these constructs as proxies for *each other*. Although correlations within each category are relatively strong, averaging close to $r = .50$, this also means that there is only an average 25% overlap in variance. Given the variability we found in the degree and direction of associations to external variables within self-focused and other-focused categories—for example, independent self-construal and self-interest predicting prosocial and antisocial behaviours in opposite directions—using different lower-order constructs as proxies for one another could lead to misleading conclusions. Such warnings are similar to those in research on other hierarchically-organized individual

differences. For example, Big 5 traits like extraversion are commonly broken down into lower-order factors like enthusiasm and assertiveness (DeYoung, 2015). Each aspect is a valid indicator of extraversion, findings about the aspects can inform us about extraversion, and findings about extraversion can inform us about the aspects. Yet, the two aspects cannot be conflated as equivalent (using enthusiasm as an index of assertiveness) as they can still show divergent relations to external criteria (e.g., when predicting agreeableness; DeYoung et al., 2007).

Thus, we suggest that future research on self-focused and other-focused orientations attend more carefully to the hierarchical nature of these constructs, and to the unique value of studying how these motivations manifest at different levels. We've argued that high-level versions of these constructs may generally offer the best predictions for broad classes of behaviours (e.g., prosocial behaviours). Yet, lower-order motivations (e.g., pro-environmental values) may be highly useful in predicting behaviours in matched domains (e.g., recycling, water conservation). Mid-level motivations (e.g., motives for personal growth) may also offer promise in elucidating patterns missed at the other two levels.

5.8. Strengths, Limitations, and Generalizability

We acknowledge that our studies do not allow us to draw strong causal inferences, as they were cross-sectional and observational. We did not complement our studies with laboratory-based experiments because, although these would allow for stronger causal inferences, experimental paradigms tend to be limited in their ability to examine a representative and ecologically valid sample of behaviours—especially antisocial behaviours (Ritter & Eslea, 2005). Given the limitation of experimental work, we suggest that the use of longitudinal assessments in future research would be particularly useful to strengthen our inferences. This would establish the temporal ordering of the effects.

The current studies also have several strengths. *First*, our analyses examining the effects of self-focused orientations always controlled for the effects of other-focused orientations, and vice-versa. Given the frequent and non-trivial association between these two orientations, this allowed us to better isolate the relevant effects. *Second*, we built on past research by consistently examining the effects of these two orientations on prosocial and antisocial behaviours simultaneously. Such analyses afford a richer perspective on the breadth of effects associated with the predictors, allowing us to better capture possible side-effects that may be associated with changing the motivational orientations. *Third*, we used strong measurement models, especially in Study 4, to assess each predictor and outcome variable, allowing us to estimate patterns with higher reliability and validity. *Fourth*, we replicated our findings across four distinct samples, varying from American samples (Studies 1 and 4) to large samples drawn across 78 countries (Studies 2 and 3). These allowed us to examine the generalizability of our findings across diverse national contexts. *Fifth*, we examined many ways of operationalizing both our predictor and outcome variables. This provided us with greater confidence that our inferences could be drawn at a general and abstract level (i.e., about self-focused and other-focused orientations in general), while also allowing us to observe variations across different operationalizations.

With relation to this last point, however, we advise caution when considering single associations between two specific indicators (e.g., interdependent self-construal and OCB). Such associations depend on single or small sets of tests and should be replicated. In contrast, we have more confidence in inferences that involve repeated tests of an association between any specific indicator and a general *type* of variable (e.g., interdependent self-construal and prosocial behaviours), as multiple tests of this association converge. Finally, we have the greatest

confidence in the associations among the broad types of variables (e.g., other-focused orientations and prosocial behaviours). These broad inferences are, after all, the main questions the current project was designed to address.

6. Conclusion

This project advocates taking a more holistic view of the associations between broad psychological predictors of behaviours (i.e., self-focused and other-focused orientations) and multiple behavioural outcomes. Since past research on the psychological correlates of prosocial and antisocial behaviours have been relatively isolated from each other, we sought to bring these literatures together by considering both behaviour types simultaneously.

In four studies, we examined how individual differences in self- and other-focused orientations were associated with prosocial and antisocial behaviours/attitudes. We found consistent evidence that other-focused orientations were positively associated with prosocial outcomes and negatively associated with antisocial outcomes; effects were highly consistent cross-nationally and across different assessment methods. Additionally, we found self-focused orientations to generally be positively related to both prosocial and antisocial outcomes, but the association to prosocial behaviours varied substantially across nations and different operationalizations of self-focused orientations.

Our findings advise caution that targeting self-focused orientations to change behaviours (e.g., increasing prosocial behaviours) could have negative unintended consequences (e.g., increasing antisocial behaviours). Other-focused orientations may be more effective intervention targets and may even benefit from *positive* unintended effects (e.g., decreasing antisocial behaviours).

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Appendix

Considerations that Informed Our Definitions of Prosocial/Antisocial Behaviours.

In defining prosocial and antisocial behaviours, we sought definitions that would: (1) capture the diversity of behaviours typically considered as prosocial/antisocial, (2) reflect common operationalizations in research, and (3) allow prosocial and antisocial definitions to mirror and complement each other (e.g., ensuring both or neither required an intent component). Relating to this final point, we note that alternative definitions require motivational/intentional states to underly the behaviours (e.g., selfless motives for prosocial behaviours, or desires to harm for antisocial behaviours; DeWall et al., 2012; Eisenberg & Miller, 1987), but, following others (e.g., Buss, 1961; Loeber & Hay, 1997), we omit such elements for three reasons.

First, many researchers and interventionists are interested in changing rates of behaviours regardless of the cognitions that prompt them. Correspondingly, most measures assess frequencies of prosocial/antisocial behaviours *without* assessing underlying cognitions (e.g., Rushton et al., 1981). When cognitions are assessed, they are usually used as predictors of behaviours (e.g., Greenslade & White, 2005). Consequently, our definitions better align with current empirical research than definitions that incorporate such cognitions. *Second*, many prosocial and antisocial behaviours occur *without* deliberate intentions (e.g., habits and reflexive actions). Definitions requiring intentions would exclude these commonly studied behaviours. *Third*, our definitions allow us to avoid confounding behaviours with specific motivations, allowing us to study the full breath of motivations that underlie behaviour. For example, defining prosocial (antisocial) behaviours as requiring altruistic (hostile) motives would limit us to only studying cases when this is true. However, it is well documented that people can engage in prosocial behaviours for selfish reasons (Snyder & Dwyer, 2012), and not just altruistic reasons.

Similarly, people sometimes enact violence for altruistic reasons (e.g., in the defence of others; Böhm et al., 2016) rather than because of inherent hostility.

Finally, we note that our definitions make no claim about the inherent morality of each behaviour type, as each can vary in morality depending on contextual, sociocultural, and philosophical considerations.

Links Between Frameworks Delineating Self- and Other-Focused Orientations

Table A1.
Works Documenting and Discussing Associations Between Each Framework, Along with Study 4 Correlations

Framework	1.	2.	3.	4.	5.	6.
1. Interpersonal Circumplex	-	A.	B.	C.	D.	E.
2. Schwartz's Theory of Human Values	.41 | .57	-	F.	G.	H.	I.
3. Masculinity | Femininity	-	-	-	J.	K.	L.
4. Independence | Interdependence	.51 | .29	.63 | .63	-	-	M.	N.
5. Self- and Other-Interest	.37 | .37	.71 | .54	-	.41 | .54	-	O.
6. Power, Achievement | Affiliation, Intimacy	.48, .54 | .25, .48	.47, .67 | .39, .69	-	.29, .56 | .49, .55	.65, .70 | .58, .59	-

References:

A: Buchanan & Bardi, 2015; Frimer et al., 2011; Milfont et al., 2016; Park-Leduc et al., 2015; Ponikiewska et al., 2020; Schwartz & Bilsky, 1987; Trapnell & Paulhus, 2012.

B: Bakan 1966; Bem et al., 1976; Helgeson, 1994; Hiller & Philiber, 1985; Locke, 2000; Saragovi et al., 1997; Trapnell & Paulhus, 2012; Wiggins & Holzmuller, 1981; Ward et al., 2006; Wood & Eagly, 2015.

C: Abele & Wojciszke, 2007; 2014; Abele et al., 2016; Miyamoto et al., 2018.

D: Abele & Wojciszke, 2007; 2014; Frimer et al., 2011.

E: Brunstein et al., 1998, Mansfield & McAdams, 1996; Pöhlmann, 2001; Schönbrodt & Gerstenberg, 2012.

F: Di Dio et al., 1996; Schwartz & Rubel, 2005; Schwartz & Rubel-Lifschitz, 2009.

G: Cukur et al., 2004; Oishi et al., 1998; Schwartz, 1994b; Triandis et al., 1990; Verplanken et al., 2009

H: Gerbasi, 2011; Gerbasi & Prentice, 2013; Schwartz et al., 2012b.

I: Bilsky & Schwartz, 2008; Hofer et al., 2006; Schwartz, 2012; Schwartz et al., 2012b.

J: Cross & Madson, 1997; Josephs et al., 1992; Kemmelmeier & Oyserman, 2001.

K: Gerbasi, 2011; Gerbasi & Prentice, 2013.

L: Diekman & Eagly, 2008; James et al., 1995; Pöhlmann, 2001

M: Gerbasi, 2011; Gerbasi & Prentice, 2013; Miyamoto et al., 2018.

N: Abele et al., 2016; Triandis et al., 1985

O: Abele & Wojciszke, 2014; Gerbasi, 2011; Gerbasi & Prentice, 2013.

Note. Letters in the upper diagonal indicate which references relate to each theoretical pairing. Numbers in the lower diagonal show correlations from Study 4. The first number in each cell (*black italics*; before the |) indicates the correlation between self-focused orientations (e.g., assertiveness and personal focus values = .41). The second number (grey, non-italics, after the |) indicates the correlation between other-focused orientations (e.g., compassion and social focus values = .57). Supplemental Table S28 provides a more detailed breakdown of correlations.