



In search of determinants of pro-social potential in a group of honorary blood donors – the importance of personality and health resources for interpersonal generosity

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Abstract: Worldwide reports attest to the burgeoning popularity of research in the group of honorary blood donors. It involves a wide range of variables related to both fear and anxiety associated with the blood donation process, as well as the search for traits and resources motivating people to donate blood and donating on a regular basis, and factors related to prosocial potential in this group. Accordingly, it was decided to explore the relationship between health behaviour, framed in terms of an individual's health resources, empathy, self-construal, communion and agency – understood as personal resources – and interpersonal generosity – understood as a determinant of the individual's prosocial potential. The study sample included 580 individuals, 445 of whom (76.7%) were Honorary Blood Donors and 135 (23.3%) were non-donors. The following tools were used: the Health Behaviour Inventory (IZZ), the Self-Construal Scale (SKJ), the Cognitive and Affective Empathy Questionnaire (QCAE), Scales for Measuring Agency and Communion (30-item self-description questionnaire) and the Interpersonal Generosity Scale (IGS). The results of the correlation analyses showed associations between certain health behaviours, cognitive and affective empathy, self-construal, communion and agency and interpersonal generosity. The linear regression analysis found that preventive behaviours, positive psychological attitudes, cognitive and affective empathy, interdependent self and communality (in the total sample) were significant for interpersonal generosity. Comparison of results of the correlation and regression analyses showed differences in the strengths of the associations between the Blood Donor group and the control group, while analysis using the Mann-Whitney U test, despite showing statistically significant differences between the groups, did not show them to be large enough.

Keywords: Interpersonal generosity, personal resources, health behaviours, self-construal, empathy, communion and agency

1. Introduction

In case of an emergency threatening a person's health or life, need for major surgery or any other situation that saves a person's life, one of the key procedures to guarantee survival is blood transfusion. This term can be most simply defined as the intravenous administration of whole blood (or blood components) that has first been collected in sufficient quantity from a donor, tested and placed in a blood bank. In order for the blood to reach patients, it is necessary for the entire blood donation and treatment system to function properly in the collection, testing, storage and disposal of the red substance obtained from blood donors.

Honorary blood donation can be defined in two ways. Firstly, as an integrated system of blood donation centres, which in Poland is comprised of twenty-one

Regional Blood Donation and Blood Treatment Centres and their field branches, the Military Blood Donation and Blood Treatment Centre and the Blood Donation and Blood Treatment Centre of the Ministry of Internal Affairs and Administration, as well as all procedures accompanying the donation process. Secondly, it is a notion, attitude or pro-social behaviour that involves donating blood selflessly to save lives. Research in the group of blood donors is highly interdisciplinary. It covers many disciplines in psychology, including social, health, personality or emotion and motivation psychology. What they have in common, however, is that they can generally be divided into two research orientations. The former involves the study of factors that motivate and empower people to donate blood or current donors

to continue regular donations (Masser et al., 2008), as well as factors that can be considered as determinants of interpersonal and intrapersonal potential for blood donation (Kosowski, 2021a, 2021b, 2023). The latter focuses on exploration of factors that could be defined as emotional and motivational barriers in the context of the initiation of donation and the retention of donors, which mainly include fear of donation and its different steps, as well as ambivalence towards donation (Bagot et al., 2016; Duboz & Cunéo, 2010; France et al., 2013; Kowalsky et al., 2014; Martín-Santana & Beerli-Palacio, 2013; Newman, 2014; Pagliariccio & Marinuzzi, 2012; Zucoloto et al., 2019).

The study presented in this paper, continues previous research exploring the resources enhancing potential for blood donation using Hobfoll's Conservation of Resources Theory (Kosowski, 2021a, b, 2023). In relation to previous research, interpersonal generosity was chosen as a determinant of prosocial potential.

1.1. Personal resources

Personal resources are conceptualised as material, physical or psychological predispositions or characteristics. They are important for efficient functioning of an individual in different situations – whether related to a stress factor or to one's general potential. The potential can refer to efficient functioning at work as well as, for example, to pro-social activities or improving one's health (Mróz, 2014; Ogińska-Bulik et al., 2015; Pietras-Mrozicka, 2016). Personal resources are a component of the human psyche that is shaped and enriched in the evolutionary process (Pietras-Mrozicka, 2016). They develop with the process of socialisation, or they can be inborn, which is why, in addition to personal resources understood as specific characteristics of an individual, social/environmental resources have also been distinguished; these can be considered as features of the external environment (social, civilisational, cultural or even natural) important for improving the functioning of the person (Pietras-Mrozicka, 2016). In the presented study, personal resources were primarily construed in accordance with Hobfoll's theory (1989; 2006), which considers them

to be objects, energies or intrapersonal conditions being guarantors of survival or likely to be used as tools that help to pursue situations or objects of value that ensure person's survival. The Conservation of Resources Theory (COR), opines that an individual strives to acquire, protect, and retain resources construed as everything that constitutes/presents a value to an individual or everything that ensures/guarantees his or her efficient survival in any situation (Łaguna, 2015). Hobfoll proposes to approach the issue of personal resources in the context of their occurrence in different configurations, the so-called resource caravans. This means that any single resource may be associated with other resources, and a person acquiring them intentionally or developing them through life experiences, acquires a certain set of them, as in a certain way each resource is coupled with the next one(s) (after: Dudek, Bielawska-Batorowicz, 2012; Mróz, 2014). An analogy can, therefore, be made with not having a particular resource – the consequence of missing one can be missing the others (Mróz, 2014).

1.2. Health behaviours (health potentials)

After WHO's (1948) Constitution, the main determinant of human health is an individual's perceived general psychosocial well-being, that is positive feelings, attitudes and subjective, positive assessments of one's mental, physical and social functioning, which are additionally accompanied by the absence of illness or weakness (Heszen, 2012). Health is also included in the category of human potential, i.e. "a disposition that enables adaptive functioning in a specific environmental context" (Heszen-Celińska, Sęk, 2020, p. 34). In the context of this category, the role of health potential which, by improving a person's effective functioning, strengthens their potential for activities related to helping others, becomes crucial for the presented study. Health potential includes many personality traits, temperament traits, interpersonal traits, etc. (Borys, 2010). In the context of the presented study, health-oriented behaviours – i.e. intentional actions of an individual aimed at bringing him/her closer to achieving a state of health – become interesting.

Health behaviour is a key determinant of the overall health of individuals. It is a set of actions related to one's body, psychological/mental sphere, diet and various types of habits that are intended to maintain and restore health or cause immediate or delayed damage (Gruszczyńska et al., 2015). Therefore, two basic types of health behaviours are distinguished – [1] pro-health behaviours, and [2] anti-health behaviours:

[1] Health-promoting behaviours are conscious and positive activities (Gruszczyńska et al., 2015) intended to strengthen the health potential and to eliminate actions and habits that may have a negative impact on the health of an individual (Muszalik et al., 2013). Such behaviours include physical activity, avoiding consumption of intoxicating substances or unhealthy products (Woynarowska, 2007). These behaviours enhance the health of an individual and are important for his or her subjective psychological well-being (Gruszczyńska et al., 2015).

[2] Anti-health behaviours are negative or self-destructive actions deteriorating the health of an individual and disrupting his or her functioning in the psychosocial, cognitive, physical, and other aspects. (Sygit-Kowalkowska, 2014). Such behaviours include, among others, consumption of harmful substances, engaging in dangerous activities, mutilation, etc.

Health behaviours can, therefore, be considered as a construct impossible to be clearly defined. In the presented research, they were assumed to be positive behaviours making the health potential and an internal resource of honorary blood donors being a determinant of a healthy life that, consequently, may be important in helping others effectively.

In the present study, we examined pro-health behaviours, captured by Zygfryd Juczyński (1999) as:

1. Good eating habits – including, for example, eating unprocessed, healthy foods or controlling body weight.
2. Preventive behaviours – including following medical advice or seeking health information.
3. Positive mental attitudes – including, for example, avoiding stressful or upsetting situations.
4. Health practices – including actions intended to maintain health-promoting habits.

1.3. Self-construal

In the broadest sense, self-construal refers to the way an individual understands oneself in relation to other people, whether as essentially independent or interdependent with others (Markus & Kitayama, 1991; Sinha & Lu, 2016). As Aleksandra Pilarska (2011) points out, the concept of the self-construal has been developed and understood through three orientations. First: as a combination of the cultural continuum – ‘individualism-collectivism’ – and personality predispositions. Second: as a component of the complex concept of Self, which is still under discussion and scientific analysis. Third: as an expression of the universal nature of the pursuit of individuation and affiliation (Pilarska, 2011). There is a noticeable divergence among researchers in understanding the relationship between individuation and affiliation orientation, with the majority accepting that both co-occur in an individual (Pilarska, 2011). The analysis of the literature revealed two basic research perspectives. The first approach emphasises existence of a dimension with individuation and affiliation as the opposite poles (Markus & Kitayama, 1991; Triandis, 1989), where individuation is a determinant of developmental achievement, indicative of the individual's maturity, and affiliation is the counterpart of the so-called “ideal self” (Baumeister, Leary, 2017; Imamoglu, 2003). The second approach considers individuation and affiliation orientation as complementary, and independent needs of the individual and his/her motivations (Li, 2002; Oyserman & Lee, 2007; Yamada & Singelis, 1999). According to Pilarska (2011), the latter approach gains the most support in empirical research.

The concept of self-construal appears to be scientifically interesting in view of the groups of respondents participating in the present study. Duclos and Barasch (2014), investigating the relationship between self-construal and generosity in groups representing collectivist (Chinese inhabitants) and individualist (United States) cultures who were helping people in need, found that self-construal orientation is important in shaping generosity. Another study (Ma-Kellams & Blascovich, 2012), also comparing representatives of two cultures, highlighted that

interdependent individuals from countries with collectivist cultures showed higher levels of empathy, that is greater understanding of the state of others and emotional contagion.

1.4. Communion and Agency

The concept of the so-called 'Big Two', has its origins in David Bakan's claim (1966), which assumed that the main components of an individual's existence are [1] the pursuit of his or her own goals, and [2] participation in both broader and narrower relationships (Bakan, 1966). Bakan, however, was more psychodynamically oriented, and thus his assertion was more of an inspiration for other scholars (Wojciszke & Cieślak, 2014). The first researcher who used an empirical approach to investigate the question of communion and agency was Vicki Helgeson (Helgeson, 1994, 2003), who framed the above orientations in terms of broad personality traits. This was confirmed by another study conducted by Bogdan Wojciszke and colleagues, who found the relationships between communion and agency and the Big Five traits, mental health, life satisfaction or coping strategies (Wojciszke & Cieślak, 2014; Wojciszke & Szlendak, 2010). The concept in question does not assume the presence of a continuum, so there is no question of a 'community agency' dimension, but of two separate, independent dimensions (Aksamit, 2016). It is important to note that while there are no dimensions between the two presented traits, they already occur within each trait – from a balanced to an unrestrained form (Aksamit, 2016; Golińska, 2019; Wojciszke & Cieślak, 2014; Wojciszke & Szlendak, 2010), however these extreme intensities are not the focus of the present study.

Communion is understood as the so-called 'warmth' dimension (Wojciszke & Szlendak, 2010) – the manifestation of an individual's existence as a component of a larger (social) organism, which is expressed through actions aimed at integration with others (cooperation, caring, etc.). It involves focusing on others, caring for them and striving for affiliation – the sense of belonging, coexistence and usefulness to the social group (Peret-Drażewska, 2014; Wojciszke & Szlendak, 2010). It also involves focusing on the goals of others and one's own relationships that

accompany these goals (Wojciszke & Cieślak, 2014). Community also includes an individual's actions, which can be considered in terms of gains and losses for other people (Wojciszke & Szlendak, 2010).

'Agency', referred to as competence (Wojciszke & Szlendak, 2010), is understood as content related to the efficient and effective realisation of one's own goals and to the evaluation of the individual usefulness and profitability of the individual's own actions. While communitarianism focuses on the action of the individual directed towards the group, causality is the focus on the self, by regarding the self as the realiser of goals (Wojciszke & Cieślak, 2014).

1.5. Empathy

Empathy is a theoretical construct that has sparked numerous scientific controversies/debates for decades now, and still continues to evolve (Czerniawska, 2002; Kliś, 2012). The reasons for this include the complexity of the construct, the multitude of ways in which it can be defined, the ambiguity in identifying its origins, and the difficulty in precisely determining the mechanisms that trigger behavioral expressions or specific patterns of behavior associated with empathizing (Czerniawska, 2002). The plethora of definitions and issues related to empathy stems primarily from divergent approaches to understanding the construct (Wilczek-Rużyczka, 2002). Each approach distinctly frames its structure and highlights its interpersonal or intrapsychic nature (Czerniawska, 2002; Wilczek-Rużyczka, 2002). Research on empathy has predominantly been conducted through the lens of two research orientations – cognitive and affective (Davis, 1999a; Kosowski, 2021b) which are outlined below.

The cognitive approach conceptualizes empathy as the endeavor to understand the functioning and emotional experiences of others on a cognitive level, meaning it is confined to understanding the states and situations of another person without adopting or sharing their emotions (Davis, 1996, 1999a; Davis et al., 1999a). In other words, cognitive empathy involves adopting the perspective of another person, which allows to understand that each individual perceives the surrounding

world subjectively (Davis et al., 1999b; Kosowski, 2021a). Skarżyńska (1981) equates the cognitive concept of empathy with the process of interpersonal decentration – the ability to take another person’s perspective and to play a specific social role. Hollin (1994), who might be included among representatives of this theoretical orientation, asserts that empathy is the ability to perceive the world, including one’s own behavior, through adopting the viewpoints of others. Meanwhile, Hogan (1969) considers it an act of constructing/sharing? the mental state of others for one’s own needs (Smith, 2006), which is nothing more than generating a mental/cognitive representation.

Researchers examining affective empathy view it as the ability to emotionally respond to the observed experiences of others (Każmierczak, 2008; Kaźmierczak et al., 2007; Kosowski, 2021b). According to Nancy Eisenberg and colleagues (2006), empathy is an emotional response that is similar or identical to the feelings of another person, taking into account the situational context (Lasota, 2019). According to this research orientation, an appropriate reaction to or individual reflection of another person’s affective state requires activation of cognitive processes – without understanding the feelings, one cannot respond adequately.

The cognitive approach puts more emphasis on understanding and being aware of the subjectivity of another person’s states (Davis, 1999b; Davis et al., 1999b; Kosowski, 2021a, b). By contrast, the affective approach highlights the “contagion” of observed emotions from another person, stemming from the understanding of those emotions (Reykowski, 1992). In the aforementioned definition of the affective empathy, it is evident that an affective response cannot occur without decoding the observed emotions of another person through cognitive tools. Therefore, Davis (1999a) suggested that empathy should be perceived and understood as a broad spectrum of both cognitive and affective processes, whose interactions result in the elicitation of a cognitive perspective, which in turn generates affective or non-affective outcomes (Każmierczak, 2008; Kosowski, 2021b). To understand the contemporary concept of empathy, it is essential to consider Davis’s framework

(Davis, 1996), which identifies three components: [1] Perspective Taking, [2] Empathic Concern, and [3] Personal Distress.

Empathy is undoubtedly an important resource and determinant of an individual’s potential in the light of Hobfoll’s Conservation of Resources Theory. In the context of the study groups, it also appears as one of the crucial elements of effective action – for honorary blood donors, it serves as a determinant of undertaking subsequent donations (Kosowski, 2021a, b).

1.6. Interpersonal generosity

Generosity has been a relatively new concept in psychology. It belongs to concepts located/found at the intersection of various fields of knowledge – religious studies, psychology, and sociology. As reported by Jessica L. Collett and Christopher A. Morrissey (2007), the term “generosity” has been used in the literature to describe the entirety of prosocial behaviors and required conceptualization and systematization to grant it the status of a variable suitable? /for empirical study. Researchers from the University of Notre Dame, the initiators of the Science of Generosity Project (2012), define generosity as a type of prosocial behavior – “a virtue involving sharing good with others freely and abundantly.”

A construct that can be considered as overlapping with generosity is altruism – a type of behavior characterized by conscious and voluntary actions aimed at providing benefits to others without expecting any form of external reward, as the individual perceives their own initiative and helping behavior as a form of self-reward (Śliwak, 2005). The aforementioned statements pertain to generosity per se, but it is crucial to focus on generosity in the interpersonal sphere – not so much related to sharing material goods, but rather one’s internal/personal? resources, such as time and attention, emotions, or specific acquired skills (Rapert et al., 2021). Consequently, in psychological terms, the concept of Interpersonal Generosity (IG) has been established – a form of generosity that occurs solely in the relationships between people. In the context of altruism, Smith and Hill (2009) emphasize that while the concept of interpersonal generosity is closely related to or sometimes strongly

overlaps with altruism in terms of prosocial orientation and motivation stemming from the need to help, it nonetheless possesses several differences that, at a conceptual level, define its specificity.

Thus, interpersonal generosity is a propensity, arising from interpersonal relationships, to share one's own intrapsychic and non-material resources with others. In the context of Hobfoll's theory, interpersonal generosity can be considered a type of key potential of an individual who decides to engage in activities aimed at helping another person – for honorary blood donors, this could involve dedicating their time, empathetic sensitivity, or willingness to help, as according to Smith and Hill (2009), blood donation is more associated with the donation of a material substance. Therefore, for the purposes of the present study, interpersonal generosity is considered a potential that determines an individual's ability to act to the benefit of others, that is through blood donations by honorary donors.

2. Method

2.1. Aim and specific design of the study

The aim of this study was to examine the relationships between health behaviors, cognitive and affective empathy, self-construal, communion, and agency, and interpersonal generosity in the group of honorary blood donors. To this end, data were collected via questionnaires distributed among honorary blood donors and individuals who did not engage in voluntary blood donation served as the control group.

To this end, the following research questions were formulated:

1. Are there any significant relationships between health behaviors, self-construal, communion and agency orientations, empathy, and interpersonal generosity?
2. Do health behaviors, self-construal, communion and agency orientations, and empathy impact interpersonal generosity?
3. Are there any differences in the strength of relationships between variables among honorary blood donors compared to the control group?
4. Will the impact of health behaviors, self-construal, communion and agency orientations, and empathy on interpersonal generosity differ between the studied groups?
5. Are there any statistically significant differences in the intensity of the studied traits or behaviors between the groups?
6. Will the blood donor group exhibit the highest level of interpersonal generosity?

The following research hypotheses were put forward. We decided to formulate main hypotheses (e.g. H1) and specific hypotheses (e.g. H4a):

- H1: There are positive and statistically significant relationships between health behaviours, self-construal, community and agency, empathy and interpersonal generosity.
- H2: Health behaviours, self-construal, community and agency and empathy explain/account for the variance in interpersonal generosity.
- H3: There are differences in the strengths of relationships between variables in the study groups.
- H3a: Relationship strengths are higher in the group of Honorary Blood Donors.
- H4: Health behaviours, self-construal, community and agency and empathy are more significant for interpersonal generosity in the group of Honorary Blood Donors.
- H5: There are statistically significant differences for health behaviours, self-construal, communion and agency, empathy and interpersonal generosity in the study groups.
- H5a: The group of Honorary Blood Donors is the group with higher levels of interpersonal generosity.

2.2. The sample

The sample consisted of 580 people, 200 of whom (34.5%) were male, and 380 (65.5%) female. The mean age in the sample was 35.62 (SD = 10.46). Four hundred and forty-five persons (76.7%) were Honorary Blood Donors whereas 135 persons (23.3%) were non-Honorary Blood Donors.

2.2.1. Honorary blood donors

The study included a group of 445 blood donors, 37.3% of whom were male and 62.7% female. The mean age in this group was 37.5 years (SD = 9.59). Of the respondents, 18 people (4.0%) were non-working students, 39 people (8.8%) were working students, 364 people (81.8%) were professionals, 16 people (3.6%) were unemployed and 8 people (1.8%) were retired.

2.2.2. Control group – Non-Honorary blood donors

The control group consisted of 135 respondents, 34 of whom were male (25.2%) and 101 were female (74.8%). The mean age in this group was 29.4 years (SD = 10.80). Of the respondents, 39 persons (28.9%) were non-working students, 47 persons (34.8%) were working students, 41 persons (30.4%) were professionals, 6 persons (4.4%) were unemployed and 2 persons (1.5%) were retired.

2.3. Materials and methods

To measure the variables in the studied groups, valid psychometric tools with satisfactory levels of reliability were used, along with specially prepared demographic questions adapted to each group. For the purpose of the study, five scales were used:

1. *Health Behaviour Inventory* (Juczyński, 1999) – the tool consists of 24 items examining various health behaviours – good eating habits (consumption of healthy products, such as whole grain bread), health practices (engaging in physical activity or maintaining good sleeping habits), preventive behaviours (adhering to health recommendations and seeking information about one's health), and positive mental attitudes (avoiding stress, tension, or situations likely to cause depression). The respondents were to rate their agreement with the given statements on a 5-point Likert scale (1 – *almost never*; 5 – *almost always*). The reliability measures for the present study were: Cronbach's alpha: 0.858 and McDonald's omega: 0.869 for the total score.
2. *Self-Construal Scale* (Pilarska, 2011; Singelis, 1994) – the tool is used to assess feelings, thoughts, and actions related to constructs of the self – the interdependent self and the independent self. Participants rated their agreement with the statements on a 7-point Likert scale (1 – *strongly disagree*; 7 – *strongly agree*). The reliability measures for the present study were: Cronbach's alpha: 0.719 and McDonald's omega: 0.731 for the entire tool.
3. *Scales Measuring Agency and Communion* (Wojciszke & Szlendak, 2010) – a 30-item self-report questionnaire that assesses the intensity of agentic and communal orientations, with 15 items corresponding to each orientation. The test items consist of a list of adjectives describing various human traits. Participants rated how well each adjective described them on a 7-point Likert scale with a point of indifference (Aksamit, 2016) – (1 – *definitely not*; 4 – *hard to say, somewhat yes, somewhat no*; 7 – *definitely yes*). The reliability measures for the present study were: Cronbach's alpha: 0.934 and McDonald's omega: 0.939 for the entire tool.
4. *Questionnaire of Cognitive and Affective Empathy* (Lasota et al., 2020; Reniers et al., 2009) – the measure consists of two scales: [1] Cognitive empathy, which includes two subscales – (1) Perspective Taking and (2) Direct Simulation; and [2] Affective empathy, which comprises three subscales: (1) Emotional Contagion, (2) Direct Affective Response, and (3) Indirect Affective Response. Participants rated their agreement with the items on a 4-point Likert

scale (4 – *strongly agree*; 1 – *strongly disagree*). The reliability measures for the present study were: Cronbach’s alpha: 0.849 and McDonald’s omega: 0.865 for the entire tool.

5. *Interpersonal Generosity Scale* (Mróz et al., 2024; C. Smith & Hill, 2009) – it consists of 10 items and six subscales. The subscales measure specific aspects of generosity, such as: Attention, Compassion, Openness, Self-Extension, Courage, and Verbal Expression. Participants rated their agreement with the statements (e.g., I am a person who is willing to go the extra mile to care for my friends, family, and acquaintances) on a 6-point Likert scale (1 – *strongly disagree*; 3 – *somewhat disagree*; 6 – *strongly agree*). The reliability measures for the present study were: Cronbach’s alpha: 0.904 and McDonald’s omega: 0.907 for the entire tool.

The study was conducted remotely via Google Forms. The survey form included a socio-demographic section and various subsections with questions tailored to specific study groups. The study was anonymous and voluntary – each participant accepted the terms of the study at the outset and declared that they had been informed they could discontinue participation at any time without any consequences. To eliminate unreliable responses due to inattentive completion of the questionnaires, an attention check was employed – control questions (e.g., mark the middle of the scale; choose the correct answer to the equation 2+2=?) were placed at several random points. Incorrect answers to these questions allowed for the exclusion of participants who did not provide attentive and reliable responses in the questionnaire sets. This method led to the exclusion of two participants who answered the control questions incorrectly out of 582 respondents.

To test the hypotheses, the necessary statistical analyses were performed using two software programs – IBM SPSS version 27, and Jamovi version 2.3.28. The following table (see: Table 1.) outlines the statistical methods used for hypothesis testing and specifies the environment in which each analysis was conducted.

Table 1. Overview of statistical methods used for calculations and hypothesis testing, and statistical software used

Hypothesis/ Calculation	Method Used	Software
Descriptive Statistics	Descriptive Statistics Table	Jamovi
Reliability Analysis	Calculation of Cronbach’s α and McDonald’s ω	Jamovi
H1	Pearson Correlation Analysis	Jamovi
H2	Linear Regression Analysis	IBM SPSS
H3+H3a	Pearson Correlation Analysis	Jamovi
H4	Linear Regression Analysis	Jamovi
H5+H5a	Nonparametric Mann-Whitney U Test	Jamovi

Source: author’s own elaboration

3. Results

3.1. Descriptive statistics

Firstly, descriptive statistics were calculated for the variables in the different study groups (see: Table 2.). The Shapiro-Wilk test showed statistically significant results for most variables in the study groups, indicating rejection of the null hypothesis of normal distributions in those groups. Non-significant results, which failed to reject the null hypothesis, were found for the control group concerning the variables: good eating habits, preventive behaviours, positive mental attitudes, health practices, independent self, and agentic orientation (Table 2.).

3.2. Correlation analysis for the total sample

The next step was to calculate the Pearson correlation coefficients for health behaviours, self-construal, community and agency, cognitive and affective empathy, and interpersonal generosity in the sample (see: Table 3.). Results of the analysis showed positive and statistically significant relationships between good eating habits, preventive behaviours, positive mental attitudes, and interpersonal generosity (two-tailed significance at $p < 0.001$). No statistically significant relationship was found between health practices and interpersonal generosity. The analysis also demonstrated the relationships between independent self

Table 2. Descriptive statistics for the study variables in the test and control group

	Group	M	SE	Mdn	SD	σ^2	Min	Max	Skewness		Kurtosis		Shapiro-Wilk's test	
									Ske	SE	K	SE	W	p
Good eating habits	Blood Donors	20.027	0.220	20.000	4.642	21.549	6.000	30.000	-0.233	0.116	0.096	0.231	0.987	<0.001
	Control	18.940	0.355	19.000	4.107	16.869	8.000	30.000	0.242	0.209	0.179	0.416	0.987	0.230
Preventive behaviours	Blood Donors	19.494	0.211	20.000	4.460	19.890	6.000	30.000	-0.143	0.116	-0.351	0.231	0.991	0.007
	Control	19.567	0.403	19.000	4.665	21.766	10.000	29.000	0.132	0.209	-0.524	0.416	0.977	0.021
Positive mental attitudes	Blood Donors	20.861	0.188	21.000	3.963	15.706	8.000	30.000	-0.271	0.116	-0.003	0.231	0.989	0.002
	Control	19.657	0.364	20.000	4.218	17.791	8.000	30.000	-0.157	0.209	0.052	0.416	0.988	0.272
Health practices	Blood Donors	19.982	0.190	20.000	4.001	16.009	7.000	30.000	-0.290	0.116	0.125	0.231	0.988	<0.001
	Control	18.925	0.350	19.000	4.052	16.415	7.000	30.000	-0.019	0.209	0.317	0.416	0.984	0.108
Cognitive empathy	Blood Donors	56.497	0.380	56.000	8.011	64.183	31.000	75.000	-0.240	0.116	-0.039	0.231	0.992	0.014
	Control	58.164	0.702	58.500	8.125	66.018	36.000	73.000	-0.443	0.209	-0.039	0.416	0.977	0.023
Affective empathy	Blood Donors	33.029	0.242	33.000	5.111	26.119	17.000	47.000	-0.153	0.116	-0.147	0.231	0.994	0.056
	Control	34.231	0.461	35.000	5.339	28.510	20.000	46.000	-0.394	0.209	-0.056	0.416	0.979	0.034
Independed Self	Blood Donors	45.647	0.389	46.000	8.198	67.202	19.000	63.000	-0.300	0.116	-0.158	0.231	0.990	0.003
	Control	44.567	0.804	46.000	9.309	86.653	17.000	63.000	-0.280	0.209	-0.304	0.416	0.986	0.169
Inter-dependent Self	Blood Donors	44.360	0.377	44.000	7.960	63.357	18.000	63.000	-0.323	0.116	0.023	0.231	0.990	0.005
	Control	43.724	0.747	45.000	8.645	74.743	10.000	63.000	-1.011	0.209	1.862	0.416	0.943	<0.001
Agency	Blood Donors	5.128	0.049	5.130	1.028	1.057	1.270	7.000	-0.622	0.116	0.615	0.231	0.974	<0.001
	Control	5.008	0.090	5.070	1.038	1.077	2.470	7.000	-0.229	0.209	-0.421	0.416	0.987	0.217
Communion	Blood Donors	5.818	0.038	5.930	0.809	0.655	2.000	7.000	-1.025	0.116	1.766	0.231	0.940	<0.001
	Control	5.855	0.068	5.900	0.793	0.629	2.930	7.000	-0.706	0.209	0.553	0.416	0.952	<0.001
Interpersonal generosity	Blood Donors	48.620	0.382	50.000	8.051	64.817	10.000	60.000	-1.097	0.116	2.465	0.231	0.933	<0.001
	Control	49.231	0.683	51.000	7.903	62.465	25.000	60.000	-0.844	0.209	0.319	0.416	0.937	<0.001

and interdependent self with interpersonal generosity (two-tailed significance at $p < 0.001$). Positive and significant relationships were also found for communal orientation, agentic orientation, and interpersonal generosity (two-tailed significance at $p < 0.001$), with high correlation coefficient for the relationship between communal orientation and interpersonal generosity ($r = 0.759$). Statistically significant and positive relationships were also demonstrated for cognitive and affective empathy with interpersonal generosity (two-tailed significance at $p < 0.001$) (Table 3.).

3.3. Correlation analysis in the group of honorary blood donors

In the next step, Pearson correlation coefficients were calculated for health behaviour, self-construal, community and agency, cognitive and affective empathy and interpersonal generosity in the group of voluntary blood donors (see: Table 4.). The analysis showed positive and statistically significant associations between positive eating habits, preventive behaviours, positive psychological attitudes and interpersonal generosity

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Table 3. Pearson's r–correlation coefficients for the variables studied in the sample, N=580

	1	2	3	4	5	6	7	8	9	10	11
1 Good eating habits	-										
2 Preventive behaviours	0,555***	-									
3 Positive mental attitudes	0,453***	0,505***	-								
4 Health practices	0,386***	0,421***	0,490***	-							
5 Cognitive empathy	0,237***	0,301***	0,276***	0,038	-						
6 Affective empathy	0,067	0,200***	-0,047	-0,012	0,359***	-					
7 Independed Self	0,197***	0,153***	0,303***	0,036	0,391***	-0,055	-				
8 Interdepend-ent Self	0,123**	0,153***	0,111**	-0,012	0,254***	0,406***	0,124**	-			
9 Community	0,202***	0,256***	0,273***	0,000	0,520***	0,353***	0,311***	0,504***	-		
10 Agency	0,259***	0,211***	0,414***	0,097*	0,386***	-0,067	0,597***	0,111**	0,457***	-	
11 Interpersonal generosity	0,191***	0,298***	0,273***	0,009	0,505***	0,417***	0,283***	0,472***	0,759***	0,359***	-

* p < .05, ** p < .01, *** p < .001

Table 4. Pearson's r–correlation coefficients for the variables studied in the group of honorary blood donors, n = 445

	1	2	3	4	5	6	7	8	9	10	11
1 Good eating habits	-										
2 Preventive behaviours	0.558***	-									
3 Positive mental attitudes	0.459***	0.493***	-								
4 Health practices	0.429***	0.433***	0.486***	-							
5 Cognitive empathy	0.218***	0.278***	0.271***	0.042	-						
6 Affective empathy	0.028	0.150**	-0.076	-0.012	0.348***	-					
7 Independed Self	0.152**	0.105*	0.288***	0.010	0.390***	-0.100*	-				
8 Interdependent Self	0.088	0.136**	0.073	0.021	0.238***	0.430***	0.082	-			
9 Community	0.188***	0.257***	0.285***	0.012	0.523***	0.354***	0.309***	0.495***	-		
10 Agency	0.262***	0.207***	0.434***	0.115*	0.406***	-0.097*	0.604***	0.089	0.456***	-	
11 Interpersonal generosity	0.201***	0.292***	0.271***	0.015	0.525***	0.421***	0.290***	0.459***	0.762***	0.359***	-

* p < .05, ** p < .01, *** p < .001

(two-tailed significance at $p < 0.001$). No statistically significant association was found between health practices and interpersonal generosity. The analysis also showed associations of the independent self and the interdependent self with interpersonal generosity (two-tailed significance at $p < 0.001$). Positive and significant relationships were also found between for communion and agency and interpersonal generosity (two-tailed significance at $p < 0.001$), with a high correlation coefficient for the relationship between togetherness and interpersonal generosity ($r = 0.762$). The associations between cognitive and affective empathy with interpersonal generosity were also shown to be statistically significant and positive (two-tailed significance at $p < 0.001$) (Table 4.).

3.4. Correlation analysis in the control group

In the next step, Pearson correlation coefficients were calculated for health behaviour, self-construal, communion and agency, cognitive and affective

empathy and interpersonal generosity in the control group, which consisted of non-blood donors (see: Table 5.). The analysis showed positive and statistically significant associations between good eating habits, preventive behaviours, positive mental attitudes and interpersonal generosity (two-tailed significance at $p < 0.001$). No statistically significant association was found between health practices and interpersonal generosity. The analysis also showed associations of the independent self and the interdependent self with interpersonal generosity (two-tailed significance at $p < 0.001$). Positive and significant relationships were also found for communion, agency and interpersonal generosity (two-tailed significance at $p < 0.001$), with a high correlation coefficient for the relationship between togetherness/communion? and interpersonal generosity ($r = 0.746$). The associations of cognitive and affective empathy with interpersonal generosity were also shown to be statistically significant and positive (two-tailed significance at $p < 0.001$) (Table 5.).

Table 5. Pearson's r-correlation coefficients for the variables studied in the control group, n = 135

	1	2	3	4	5	6	7	8	9	10	11
1 Good eating habits	-										
2 Preventive behaviours	0.568***	-									
3 Positive mental attitudes	0.409***	0.563***	-								
4 Health practices	0.203*	0.396***	0.473***	-							
5 Cognitive empathy	0.356***	0.374***	0.352***	0.068	-						
6 Affective empathy	0.252**	0.353***	0.090	0.035	0.367***	-					
7 Independed Self	0.331***	0.289***	0.331***	0.091	0.420***	0.089	-				
8 Interdependent Self	0.232**	0.206*	0.208*	-0.126	0.318***	0.361***	0.231**	-			
9 Community	0.269**	0.252**	0.257**	-0.027	0.512***	0.349***	0.325***	0.540***	-		
10 Agency	0.236**	0.224**	0.344***	0.016	0.351***	0.045	0.576***	0.170*	0.468***	-	
11 Interpersonal generosity	0.175*	0.320***	0.306***	0.007	0.438***	0.404***	0.273**	0.522***	0.746***	0.370***	-

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6. Multiple linear regression coefficients for interpersonal generosity as a dependent variable in the study sample N=580

	B	SE	β	t	p			RMSE	F	
	Good eating habits	0.048	0.085	0.027	0.565	0.572				
	Preventive behaviours	0.457	0.089	0.257	5.138	0.000				
1	Positive mental attitudes	0.479	0.096	0.242	4.986	0.000	0.146	0.140	7.428	(4;575)=24.532 p = 0.000
	Health practices	-0.453	0.091	-0.228	-4.971	0.000				
	Good eating habits	0.002	0.073	0.001	0.026	0.979				
	Preventive behaviours	0.165	0.079	0.093	2.084	0.038				
2	Positive mental attitudes	0.445	0.086	0.225	5.165	0.000	0.37	0.364	6.39	(6;573)=56.123 p = 0.000
	Health practices	-0.295	0.08	-0.149	-3.713	0.000				
	Cognitive empathy	0.313	0.038	0.315	8.24	0.000				
	Affective empathy	0.455	0.057	0.294	8.004	0.000				
	Good eating habits	-0.042	0.069	-0.024	-0.61	0.542				
	Preventive behaviours	0.175	0.075	0.098	2.347	0.019				
	Positive mental attitudes	0.327	0.083	0.165	3.949	0.000				
3	Health practices	-0.221	0.075	-0.111	-2.935	0.003	0.418	0.38	6.008	(8;571)=57.239 p = 0.000
	Cognitive empathy	0.253	0.038	0.254	6.585	0.000				
	Affective empathy	0.319	0.058	0.207	5.463	0.000				
	Idependent Self	0.099	0.034	0.104	2.907	0.004				
	Interdependent Self	0.275	0.034	0.279	7.993	0.000				
	Good eating habits	-0.055	0.057	-0.031	-0.975	0.33				
	Preventive behaviours	0.141	0.061	0.079	2.3	0.022				
	Positive mental attitudes	0.149	0.07	0.076	2.13	0.034				
	Health practices	-0.103	0.062	-0.052	-1.644	0.101				
4	Cognitive empathy	0.08	0.033	0.08	2.403	0.017	0.627	0.597	4.935	(10;569)=95.606 p = 0.000
	Affective empathy	0.224	0.049	0.145	4.573	0.000				
	Idependent Self	0.037	0.031	0.039	1.171	0.242				
	Interdependent Self	0.079	0.031	0.08	2.559	0.011				
	Agency	0.068	0.283	0.009	0.24	0.81				
	Community	5.719	0.366	0.575	15.63	0.000				

3.5. Linear regression analysis for the total sample

The next stage of the study was to conduct a multiple linear regression analysis for interpersonal generosity as the dependent variable and health behaviour, self-construal, community and agency, and cognitive and affective empathy as predictors in the study sample (see: Table 6.).

An input method was used in the calculations. In the first step, health behaviours were entered into the model. The model was found to be a good and statistically significant fit to the data, explaining for 14% of the variance in interpersonal generosity, while the predictors significant for interpersonal generosity were preventive behaviours, positive mental attitudes and health practices. In the second step, cognitive and affective empathy were entered into the model. The sec-

Table 7. Multiple linear regression coefficients for interpersonal generosity as a dependent variable in the group of honorary blood donors, n = 445

		B	SE	β	t	p			RMSE	F
1	Good eating habits	0.096	0.097	0.055	0.987	0.324	0.143	0.135	7.486	(4;440) = 18.384 p = 0.000
	Preventive behaviours	0.44	0.103	0.244	4.282	0.000				
	Positive mental attitudes	0.482	0.112	0.237	4.315	0.000				
	Health practices	-0.462	0.107	-0.23	-4.325	0.000				
2	Good eating habits	0.061	0.082	0.035	0.74	0.459	0.394	0.385	6.311	(6;438) = 47.411 p = 0.000
	Preventive behaviours	0.171	0.089	0.095	1.928	0.054				
	Positive mental attitudes	0.443	0.099	0.218	4.495	0.000				
	Health practices	-0.316	0.091	-0.157	-3.463	0.001				
	Cognitive empathy	0.334	0.043	0.332	7.772	0.000				
	Affective empathy	0.479	0.065	0.304	7.412	0.000				
3	Good eating habits	0.034	0.077	0.02	0.443	0.658	0.467	0.457	5.931	(8;436) = 47.767 p = 0.000
	Preventive behaviours	0.181	0.084	0.1	2.162	0.031				
	Positive mental attitudes	0.34	0.094	0.168	3.602	0.000				
	Health practices	-0.268	0.086	-0.133	-3.105	0.002				
	Cognitive empathy	0.263	0.044	0.261	5.991	0.000				
	Affective empathy	0.352	0.068	0.224	5.197	0.000				
	Idependent Self	0.126	0.04	0.128	3.17	0.002				
Interdependent Self	0.269	0.04	0.266	6.763	0.000					
4	Good eating habits	0.024	0.064	0.014	0.37	0.711	0.636	0.628	4.912	(10;434) = 75.882 p = 0.000
	Preventive behaviours	0.124	0.07	0.068	1.777	0.076				
	Positive mental attitudes	0.131	0.081	0.065	1.615	0.107				
	Health practices	-0.125	0.072	-0.062	-1.724	0.085				
	Cognitive empathy	0.1	0.038	0.099	2.603	0.01				
	Affective empathy	0.243	0.058	0.154	4.218	0.000				
	Idependent Self	0.062	0.037	0.063	1.671	0.095				
	Interdependent Self	0.071	0.036	0.07	1.981	0.048				
	Agency	-0.059	0.328	-0.008	-0.179	0.858				
	Community	5.639	0.417	0.567	13.537	0.000				

ond model also proved to be a significant and good fit to the data, explaining 36% of the variance in interpersonal generosity. Statistically significant predictors of interpersonal generosity were preventive behaviour, positive mental attitudes, health practices and both cognitive and affective empathy. In the third step, self-construal was introduced. This model also proved to be a significant and good fit to the data and explained/accounted for 43% of the variance in interpersonal generosity. Predictors significant for interpersonal generosity were preventive

behaviours, positive mental attitudes, health practices, cognitive and affective empathy, and the dependent Self and interdependent Self. In the fourth step, communion and agency were entered, and the model was found to be a significant and good fit to the data, explaining 62% of the variance in interpersonal generosity. Predictors significant for explaining interpersonal generosity were preventive behaviour, positive psychological attitudes, cognitive and affective empathy, interdependent self and community.

Table 8. Multiple linear regression coefficients for interpersonal generosity as a dependent variable in the control group, n = 135

	B	SE	β	t	p			RMSE	F
	Good eating habits	-0.101	0.186	-0.053	-0.54	0.59			
	Preventive behaviours	0.482	0.187	0.284	2.571	0.011			
1	Positive mental attitudes	0.514	0.195	0.274	2.634	0.009	0.164	0.138	7.316
	Health practices	-0.437	0.181	-0.224	-2.415	0.017			
									(4;130) = 6.368 p = 0.000
	Good eating habits	-0.236	0.172	-0.124	-1.369	0.173			
	Preventive behaviours	0.196	0.18	0.116	1.089	0.278			
2	Positive mental attitudes	0.471	0.184	0.251	2.555	0.012	0.318	0.286	6.657
	Health practices	-0.312	0.167	-0.16	-1.867	0.064			
	Cognitive empathy	0.251	0.084	0.258	3.003	0.003			
	Affective empathy	0.417	0.122	0.283	3.413	0.001			
									(6;128) = 9.961 p = 0.000
	Good eating habits	-0.31	0.162	-0.164	-1.91	0.058			
	Preventive behaviours	0.203	0.168	0.12	1.211	0.228			
	Positive mental attitudes	0.29	0.177	0.155	1.644	0.103			
3	Health practices	-0.121	0.161	-0.062	-0.752	0.453	0.418	0.381	6.198
	Cognitive empathy	0.187	0.082	0.193	2.283	0.024			
	Affective empathy	0.277	0.12	0.188	2.317	0.022			
	Idependent Self	0.058	0.067	0.068	0.87	0.386			
	Interdependent Self	0.32	0.072	0.35	4.461	0			
									(8;126) = 11.327 p = 0.000
	Good eating habits	-0.332	0.131	-0.175	-2.535	0.012			
	Preventive behaviours	0.233	0.135	0.138	1.723	0.087			
	Positive mental attitudes	0.212	0.146	0.113	1.454	0.148			
	Health practices	-0.075	0.131	-0.039	-0.573	0.568			
4	Cognitive empathy	0.007	0.07	0.007	0.098	0.922	0.627	0.597	5.003
	Affective empathy	0.196	0.097	0.133	2.014	0.046			
	Idependent Self	0	0.061	0	-0.004	0.997			
	Interdependent Self	0.119	0.064	0.13	1.852	0.066			
	Agency	0.267	0.575	0.035	0.465	0.643			
	Community	5.898	0.785	0.592	7.516	0			
									(10;124) = 20.846 p = 0.000

3.6. Linear regression analysis in the group of honorary blood donors

In the next step, a multiple linear regression analysis was conducted for interpersonal generosity as the dependent variable and health behaviour, self-construal, community and agency and cognitive and affective empathy as predictors in the group of honorary blood donors (see: Table 7.).

An input method was used in the calculations. In the first step, health behaviours were entered into the model which was found to be a good and statistically significant fit to the data, explaining 13% of the variance in interpersonal generosity, while the predictors significant for interpersonal generosity were preventive behaviours, positive mental attitudes and health practices. In the second step, cognitive and affective empathy were entered into the model. The second model also proved to be a significant and

Table 9. Results of the Mann-Whitney's U test

Variable	Blood Donors (n= 445)				Control group (n=135)				U	p	r
	M	Mdn	SD	SE	M	Mdn	SD	SE			
Good eating habits	20.03	20	4.642	0.2201	19.01	19	4.165	0.359	25441	0.007	0.153
Preventive behaviours	19.49	20	4.46	0.2114	19.58	19	4.65	0.400	29879	0.926	0.005
Positive mental attitudes	20.86	21	3.963	0.1879	19.65	20	4.203	0.362	24825	0.002	0.174
Health practices	19.98	20	4.001	0.1897	18.93	19	4.038	0.348	25149	0.004	0.163
Cognitive empathy	56.5	56	8.011	0.3798	58.19	59	8.101	0.697	26059	0.02	0.132
Affective empathy	33.03	33	5.111	0.2423	34.27	35	5.343	0.460	25437	0.007	0.153
Independend Self	45.65	46	8.198	0.3886	44.59	46	9.276	0.798	28184	0.277	0.062
Interdependent Self	44.36	44	7.96	0.3773	43.71	45	8.614	0.741	29634	0.813	0.013
Agency	5.13	5.13	1.028	0.0487	5.01	5.1	1.034	0.089	27813	0.192	0.074
Community	5.82	5.93	0.81	0.0384	5.86	5.9	0.791	0.068	29348	0.686	0.023
Interpersonal generosity	48.62	50	8.051	0.3816	49.26	51	7.881	0.678	28424	0.344	0.054

good fit to the data, explaining 38% of the variance in interpersonal generosity. Predictors of statistical significance for interpersonal generosity were preventive behaviours (at the limit of statistical trend), positive mental attitudes, health practices and cognitive and affective empathy. In the third step, we entered self-construal. This model also proved to be a significant and good fit to the data and explained 45% of the variance in interpersonal generosity. Predictors significant for interpersonal generosity were preventive behaviours, positive mental attitudes, health practices, cognitive and affective empathy, and the dependent Self and interdependent Self. In the fourth step, community and agency were introduced, and the model was found to be a significant and good fit to the data, explaining 63% of the variance in interpersonal generosity. The predictors significant for explaining interpersonal generosity were cognitive and affective empathy, the Interdependent Self and community.

3.7. Linear regression analysis in the control group

In the next step, a multiple linear regression analysis was conducted for interpersonal generosity as the dependent variable and health behaviour, self-construal, community and agency, and cognitive and affective empathy as predictors in the control group (see: Table 8.).

An input method was used in the calculations. In the first step, health behaviours were entered into the model which was found to be a good and statistically significant fit to the data, explaining 13% of the variance in interpersonal generosity, while predictors significant for interpersonal generosity were preventive behaviours, positive mental attitudes and health practices. In the second step, cognitive and affective empathy were introduced into the model. The second model also proved to be a significant and good fit to the data, explaining/ accounting for 28% of the variance in interpersonal generosity. Statistically significant predictors of interpersonal generosity were positive mental attitudes and cognitive and affective empathy. In the third step, self-construal was entered. This model also proved to be a significant and good fit to the data and explained 38% of the variance in interpersonal generosity. Predictors significant for interpersonal generosity were good eating habits, cognitive and affective empathy and the Interdependent Self. In the fourth step, community and agency were introduced and the model was found to be a significant and good fit to the data, explaining 59% of the variance in interpersonal generosity. Predictors significant for explaining interpersonal generosity were good eating habits, affective empathy, interdependent self (at the limit of statistical trend) and community.

3.8. The Mann–Whitney U Test

In the next step, a non-parametric rank-sum test was used to compare the differences in the study variables in the group of honorary blood donors and the control group (see: Table 9.).

Results of the Mann-Whitney U-test showed statistically significant differences between Honorary Blood Donors and non-donors for good eating habits (higher levels in the Blood Donor group), positive mental attitudes (higher levels in the Blood Donor group), health practices (higher levels in the Blood Donor group), and cognitive and affective empathy (higher levels in the control group).

4. Discussion

The aim of the present study was to investigate the relationships between health behaviour, understood as an individual's health resources, cognitive and affective empathy, self-construal, community and causality/agency? orientation, that is variables construed as the individual's personality resources, and interpersonal generosity, construed as an indicator of the individual's potential, and a determinant of prosociality. The point of departure for the presented study was Hobfoll's Theory of Resource Behaviour (Bernat & Krzyszkowska, 2017; Hobfoll, 1989, 2006) which assumes the possibility of combining different types of resources into 'resource caravans', that is constellations of different predispositions/propensities?, traits and skills that build and strengthen the potential of an individual. In order to test the assumed hypotheses, a series of statistical analyses was performed, which is explained and summarized further in this chapter.

Hypothesis H1, assuming the existence of positive and statistically significant relationships between health behaviours, cognitive and affective empathy, self-construal, community and agency orientation and interpersonal generosity, was partially supported; the only variable that failed to show any statistically significant correlation with interpersonal generosity were health practices, a health behaviour. Significant correlations between the independent variables and the dependent variable were also found in correlation

analyses in the group of Honorary Blood Donors and the control group. The obtained results comply? with the claims regarding the relationship between empathy and prosocial behaviour (Lönnqvist & Walkowitz, 2019). The results also showed a link between self-construal and generosity. This result is to some extent contradictory to the results obtained by Duclos and Barasch (2014), where independent individuals helped in-group and out-group victims equally, and interdependent individuals were more likely to donate to the in-group (i.e., Caucasians) than to out-group members (i.e., African Americans). The associations of community orientation and the interdependent self with interpersonal generosity are also supported by the findings of Simpson and colleagues (2018), which showed that interdependent socially recognised individuals are able to make larger donations. More links of the obtained results of the correlation analysis are presented in the discussion of hypothesis H2, concerning linear regression analysis.

Hypothesis H2, which assumed that interpersonal generosity was explained by health behaviours, cognitive and affective empathy, self construal, and community and agency orientations, was partially supported. In the last step of the analysis, in which all study variables were entered, it was shown that preventive behaviours, positive mental attitudes, health practices, cognitive and affective empathy, the Interdependent Self and community were statistically significant for interpersonal generosity. The obtained results of the correlation analysis and linear regression analysis exploring the relationship between empathy and interpersonal generosity are supported by the study by Twenge and colleagues (2007), who showed that empathy is important in explaining interpersonal generosity, and that its level decreases along with stronger feelings of social exclusion. The importance of empathy in explaining prosocial behaviour was also demonstrated in the study by Lockwood and colleagues (2014), who found that both affective and cognitive empathy constitute motivating factors for prosocial behaviour, and in the study of abused adolescents by Dickerson and Quas (2021), who also found strong links between empathy and generosity. The relationship between empathy and generosity was also found in the study by Verhaert and Van den Poel (2011), who indicated high importance of higher levels of empathy for making the decision to

donate. The links between health behaviour, community and agency, self-construal and interpersonal generosity shown in the present study were also partially supported in the study by O'Malley and colleagues (2012), who found that prosocial activity in general is highly contingent on the individual's better health and stronger social ties. The obtained results, therefore, may indicate that taking care of one's own health through the use of beneficial practices and the personality predisposition associated with the perception of oneself as a component of and one's dependence on a wider social group, may be related to the realisation of prosocial potential, which is expressed through interpersonal generosity. In addition, the links between the dependent Self and communality orientation are partially confirmed in the study by Glanville and colleagues (2015), which included a sample of 30,000 respondents from 19 countries, the results of which showed relationships between trust in community and person's propensity for generosity.

Hypothesis H3, which assumed the existence of differences in the strengths of relationships between the study variables, was supported – differences in Pearson correlation coefficients between the study groups were observable. In the group of Blood Donors, higher coefficients were observed for relationships between interpersonal generosity and the following independent variables: good eating habits, cognitive empathy, affective empathy, independent Self, interdependent Self and community. As regards correlations with interpersonal generosity in relation to one's loved ones, higher Pearson correlation coefficients in the Blood Donor group were observed for the following independent variables: positive mental attitudes, cognitive empathy, the Interdependent Self, the Independent Self, communality and agency orientations. In the context of interpersonal generosity towards strangers, higher Pearson correlation coefficients in the group of Blood Donors were observed for the following independent variables: good eating habits, cognitive empathy, affective empathy, community and agency. As for linear regression coefficients, when analysing the final steps of the analyses with all predictors entered, the adjusted r square values – determination coefficients – were found to be higher in the group of blood donors in the case of interpersonal generosity and interpersonal generosity towards relatives as dependent variables. In the case of interpersonal generosity towards

strangers as the dependent variable, the coefficients of determination reached the same value in both groups. On the other hand, when analysing the predictors that were statistically significant in explaining the variance of interpersonal generosity, it was noted that in the group of Blood Donors the predictors were cognitive empathy, affective empathy, the Interdependent Self and communality while in the control group the predictors were good eating habits, affective empathy and communality. In the case of interpersonal generosity towards loved ones as the dependent variable, cognitive and affective empathy and communality orientation were significant in explaining the variance of the dependent variable in the Blood Donors group, while positive mental attitudes, affective empathy and communality orientation were significant in the control group. In the case of interpersonal generosity towards strangers as the dependent variable, the following predictors were statistically significant in explaining the variance of the dependent variable in the Blood Donor group: preventive behaviour, affective empathy, the interdependent Self and communality orientation?, while in the control group: good eating habits, preventive behaviour, the Interdependent Self and communality orientation. Thus, the aforementioned observations only partially support hypothesis H3a, which indicates that strengths of the relationships are higher in the group of Blood Donors.

As for hypothesis H4, which assumed that the studied predictors would be more significant in explaining interpersonal generosity in the group of Blood Donors, the results of the analyses also provide a rationale for partial support of the aforementioned hypothesis. The results highlighted that different components of the explored constructs were significant for generosity in the study groups, and in some cases the same variables – e.g. affective empathy or community orientation were significant predictors in both groups. Nevertheless, these results are contrary to the claim of Smith and Hill's (2009) concept of interpersonal generosity, which excludes blood donation from the scope of generous giving to others.

Hypothesis H5, assuming statistically significant intergroup differences for the study variables, was also partially supported. The non-parametric Mann-Whitney U test showed significant differences only for good eating habits, positive mental attitudes

and cognitive and affective empathy. The analysis highlighted that levels of good eating habits, positive mental attitudes and health practices were higher in the group of Blood Donors. However, despite statistical significance, these differences were not very large – the medians in the Blood Donor group and in the control group differed by 1. For cognitive and affective empathy, higher scores were shown in the control group, but again although statistically significant, these differences were not very large – for these variables, the difference in medians is 2.

Hypothesis H5a, assuming that the level of interpersonal generosity would be higher in the group of Blood Donors, was not supported. Results of the Mann-Whitney U test showed no statistically significant differences between the group of Blood Donors and the control group for this variable.

The theory that may bind together and explain/for the relationships shown in the analyses is Hobfoll's Conservation of Resources Theory. Health behaviours understood as health resources or health potentials, and cognitive and affective empathy, self-construal, and community and agency orientations as personality resources, can be framed as a kind of a system that is highly significant for accounting for interpersonal generosity understood as a general fitness potential of an individual – prosociality. For the total sample, interpersonal generosity was explained in 59%, in the group of Blood Donors – in 62%, and in the control group – in 59%. In the light of this theory, it can be concluded that health behaviours and personality predispositions, such as perceiving oneself as an interdependent being forming part of a wider social group (interdependent self and communality orientation), or the ability to both cognitively understand and share other people's states, form a kind of equipment, that is a collection of resources that significantly enhance the individual's ability to take prosocial action (Hobfoll, 1989; 2006). In the case of honorary blood donors this is a highly important determinant of the potential to undertake important prosocial, and to some extent health-promoting activity, through which the health and lives of other, unfamiliar people are saved. According to Smith and Hill (2009), donating blood should not be framed in terms of giving generously to others.. It should also be noted, that blood donors

must adhere to restrictions related to the number of donations per year, hence the volume of blood that can be donated per person is limited and cannot be freely distributed in front of the subject, which may account for the absence of statistically significant differences between blood donors and the control group for interpersonal generosity. What is more, Smith and Hill (2009) conceptualise generosity as expending irreducibly intangible personal goods in order to give to others, hence the reference of the concept to the Conservation of Resources Theory.

5. Study limitations

The study encountered several limitations that may have significantly influenced the obtained results. The primary limitation was a significantly smaller size of the control group compared to the experimental group. This substantial disparity between the groups might have led to inflated results in the Blood Donors group, while potentially lowering them in the control group. Another key limitation was the remote nature of the study, which meant that the researcher could not check whether participants were completing the questionnaires attentively. Nevertheless, remote data collection methods have become increasingly popular due to the functionality and integration of the results with statistical platforms, as well as the ability to reach a larger number of participants. The risk of obtaining and using invalid responses due to inattentive completion was mitigated by the inclusion of several control questions placed randomly within the questionnaire. This allowed to exclude two questionnaires from the study.

Another limitation was the limited body of empirical knowledge regarding interpersonal generosity, which resulted in most hypotheses being formulated without strong grounds in previous research findings. However, despite the lack of a scientific foundation, the hypotheses put forward in this study remain empirically verifiable and provide a valuable starting point for further research in this area (Maciejowska, 2012).

Interpersonal generosity used as the dependent variable might also be considered a limitation, as it excludes blood donation as a form of sharing with

others. It might have been more appropriate to use a different variable that would take into account the context of blood donation as a form of sharing.

The issue of interpersonal generosity remains a relatively unexplored research niche, making the present work predominantly exploratory in nature. It raises questions and draws conclusions that may serve as a foundation for more extensive research in this field.

6. Practical implications and future directions

The results obtained in the present study have some practical implications. Quantitative examination of various aspects of the human potential enables the exploration of relationships between key predispositions defining the potential. Consequently, the findings could be used in developing promotional strategies aimed at recruiting new blood donors or retaining existing ones. Given the potential for engaging in prosocial activities, as expressed through interpersonal generosity – where empathy, a sense of community, and interdependence play a significant role – it will be crucial to craft promotional content that emphasises the importance of empathy and the need to support one's immediate social environment.

Voluntary blood donation in Poland has been largely overlooked by Polish psychology. Unfortunately, the latest report from the Central Statistical Office (GUS 2022; 2024) does not offer an optimistic outlook on

the number of donors or blood donations, as it shows that their numbers have sharply declined over the past decade. This downward trend may, unfortunately, foreshadow challenges in maintaining adequate blood supplies in banks in the coming decades. Therefore, the role of social sciences – especially psychology, with its capacity for empirically developing tools to assess levels and types of motivation, fears/anxieties, and specific attitudes towards various variables – is crucial.

Both the group of voluntary blood donors and those who do not donate blood present three important research pathways that need to be studied in greater detail. The first pathway, outlined in this paper, involves the investigation of potentials and factors that may explain why donors continue to donate regularly – specifically, identifying factors that reinforce donor motivation and ensure that donors, even after many years, continue to see their activities as valuable.

The second, and arguably more critical, pathway requires particular research attention: examining various barriers and obstacles that prevent potential new donors from giving blood and continuing donations in the future, as well as those that make it difficult to retain existing donors – such as fear/anxiety about blood donation or ambivalence towards the practice.

The third pathway involves studying the motivation to donate blood and factors that both encourage and discourage the decision to donate. This pathway should also focus on assessing the level of knowledge about the entire donation process and developing methods for effective and impactful promotion of this activity.

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