

# Youngism: Experimental Evidence

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## Abstract

Preferences over well-being of other generations shape family life, economic interactions, and political outcomes. This paper documents systematic, preference-based discrimination against young adults, and shows that it is partly due to an inaccurate belief that young adults face relatively little hardship, as compared to other generations. Using controlled experimental tasks implemented among a nationally representative sample in the Czech Republic, we find that people allocate substantially less money to individuals who are relatively younger, as compared to their own age group or relatively older age groups. The observed discriminatory behavior, which we refer to as “youngism”, is widespread, particularly severe among seniors, and similar in size to discrimination against immigrants and foreigners. On the constructive side, we show that this inter-generational divide can be reduced by a low-cost intervention. Most people underestimate the prevalence of mental health problems among young adults, and exogenous provision of accurate information increases prosocial behavior toward this group.

**Key words:** discriminatory preferences, inter-generational conflict, mental health, misperceptions, youngism

**JEL Codes:** C93, D64, D91, J14

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## 1. Introduction

Age is a salient social category in every society. Preferences over well-being of other generations are fundamental for family life, economic interactions, and political outcomes (Tabellini 1991; Charness and Villeval 2009). Many commentators in the US and across Europe worry that generations are now “at war” and suggest that disagreements and animosity across generations are among the key sources of the observed societal divisions.<sup>1</sup> *The Economist* (2016), for example, describes world’s young as “an oppressed minority” and argues that they are often held back by elders who misunderstand their challenges. It has been suggested that policy outcomes disproportionately reflect preferences of the older generations, while desires of the younger generations receive much lower weight (Chrisp and Pearce 2019; Seo 2017), potentially contributing to a lack of policy action in areas such as climate change, investments in schools, tackling youth unemployment and housing needs, and sustainability of pension systems. While this imbalance in political outcomes -- sometimes referred to as “silvercracy” or “gerontocracy” -- is typically attributed to population aging, we pursue the idea that it may also have a deeper underpinning and reflect people’s economic preferences: a lack of identification with young adults that may result in a lack of altruism or even increased spite. Our focus on preferences towards young adults is also motivated by recent research in social psychology suggesting that young people often meet anger and receive negative portraits from middle-aged individuals and seniors (Francioli and North 2021; Farkas et al. 2007; Brown 2013). However, empirical evidence on the nature of inter-generational preferences, and whether and why people may harbor discriminatory preferences against young adults is lacking.<sup>2</sup>

This paper studies economic relevance and sources of *youngism*: discriminatory preference held by medium-age or senior adults against relatively younger individuals. Using consequential, validated money-allocation tasks implemented among the nationally representative sample spanning across the whole adult age in the Czech Republic, we show that people allocate substantially less money to individuals who are relatively younger, as compared to their own age group or the relatively older age groups. Furthermore, a non-negligible fraction of subjects, especially seniors, exhibit “hostile youngism”, by actively destroying earnings of young adults even when they do not financially benefit

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<sup>1</sup> Such speculations in media are reflected in headlines such as “Generations at War” (*BBC* 2017), “Britain’s Generational Divide Has Never Been Wider” (*The Economist* 2017), or “Time to Stop the Generation Wars” (*The Washington Post* 2017) or in a recent book titles focusing on inter-generational relations, such as “Young v. Old: Generational Combat in the 21<sup>st</sup> Century” (MacManus and Turner 2018).

<sup>2</sup> Existing economic research on age-based discrimination is motivated by the observed reluctance of employers to hire old people. Consequently, it has generated important insights about stereotypes and discrimination affecting seniors on the labor market, using lab-in-field experiments (Charness and Villeval 2009) and audit studies (Neumark, Burn, and Button 2020; Carlsson and Eriksson 2019; Riach and Rich 2010; Riach 2015). The novelty of this paper is that we relax the implicit assumption that seniors are the main targets of age-based discrimination, and put the plight faced by the young side of the adult age spectrum at the center of our enquiry.

from such actions. In contrast, people mostly do not discriminate against relatively older individuals as compared to their own age group.

Next, we study how to tackle the animosity against the young, and pursue the hypothesis that youngism may originate, in part, in people's misconceptions about higher well-being of younger adults compared to other age groups. We show that participants hold very inaccurate beliefs about the extent of hardship faced by the young adults in the mental health domain: they expect that young adults are less prone to suffer from symptoms of anxiety and depression than other generations, although, in contrast, in a separate, large-scale, longitudinal data collection we show that young adults are, in fact, the most prone to suffer from depression and anxiety. Finally, randomized provision of simple statistical facts about the actual distribution of symptoms of mental health problems across generations positively affects behavior towards young adults in the allocation tasks, suggesting that correcting beliefs about a lack of hardship faced by young adults can increase empathy and help to reduce the inter-generational animosity.

The paper is based on two novel, companion data sets. The main data set includes controlled experimental tasks designed to measure youngism, coupled with a randomized information provision experiment. The second data set is a supplementary study monitoring symptoms of mental health problems in the population. The setting of our study is the Czech Republic in 2020 during Covid-19 pandemic, and thus during a period when inter-generational relations were of utmost importance.

To uncover the nature of age-based discriminatory preferences, we implement a novel allocation tasks, Help or Harm Task among 2,100 participants. Each participant makes four allocation decisions: to young adults (18-24 yrs), young middle-aged (25-45 yrs), older middle-aged (45-65), and seniors (>65), using a within-subject design. This design allows us to measure two types of age-based discriminatory preferences: youngism, measured as the difference in allocations to relatively younger individuals as compared to one's own age group, and oldism, measured as the difference in allocations to relatively older individuals, as compared to one's own age group.<sup>3</sup> To separate whether discriminatory behavior originates in a lack of altruism, a weaker form of discriminatory preferences, or in spite, a stronger form, subjects choose whether to financially help an anonymous recipient by increasing their reward or whether to financially harm by actively reducing it (Bartoš et al. 2021).

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<sup>3</sup> The term "ageism" denotes discrimination against individuals based on their age. In general, it can refer to unfavourable preferences and stereotypes targeting various age groups, such as senior citizens, young adults, adolescents or children. In popular media and some scholarly work though, the term "ageism" is sometimes used inter-changeably with "oldism" (North and Fiske 2012), i.e. discrimination against old people, perhaps in part because most of the research on age-based discrimination focused on this age group. To contrast, unfavourable attitudes and discrimination against young people have been coined "youngism". The popular use of this term is relatively broad and includes various practices and barriers faced by young people in their social and economic life, such as restricted voting and political rights, discrimination at the workplace, etc. In this paper, we link this term to economic primitives and refer to youngism as an economic preference to discriminate the young adults, either due to a lack of altruism or a greater spite.

We find that people's preferences are systematically biased against relatively younger individuals, while there is either small or no bias in social preferences against relatively older individuals. Recipients who are relatively younger than the decision-maker receive 20% less than recipients of similar age as the decision-maker. In contrast, those who are relatively older receive similar amount as the decision-maker's age group. Thus, the bias in preferences against relatively young individuals is not an outcome of general favoritism of individuals of similar age. Remarkably, the unfavorable behavior towards young adults is most severe among seniors (65+) who allocate 35% less money to young adults compared to the oldest recipients. Further, we show that the reduced allocations to young recipients is driven not only by lower altruism, but also by an increased desire to cause financial harm. Among seniors, the prevalence of harming behavior is only 4% when the recipient is another senior, but it increases to more than 22% when the recipient is from the youngest age group. These patterns hold across a variety of socio-economic groups, and are stable across two rounds of data collection over a three-week period.

Next, we study (mis)perceptions about the hardship faced by young adults. Our focus on mental health is motivated by growing evidence showing that teenagers and young adults suffer from high levels of symptoms of anxiety and depression, as compared to older generations (Lukianoff and Haidt 2019; McGinty et al. 2020; Banks and Xu 2020). In addition, mental health is a key component of individual well-being, and arguably an easy-to-understand signal of hardship. Yet, in contrast to physical health and economic conditions, symptoms of mental health are difficult to observe by outsiders, and thus prone to misconceptions about which social groups are the most affected by this form of hardship.

Using an established battery of survey questions developed by psychologists to reliably predict a professional diagnosis of depression and anxiety (Kroenke and Spitzer 2002; Spitzer et al. 2006), we find that at least moderately severe symptoms of depression and anxiety are roughly twice as common among young adults as compared to other age groups. However, in contrast, respondents believe that symptoms of depression and anxiety increase with age. Consequently, the vast majority (95%) of respondents underestimate mental health problems suffered by young adults. Specifically, respondents estimated that during the Covid-19 crisis 11% of young adults had symptoms of depression and anxiety, while the actual number was 36%. At the same time, the respondents did not underestimate the prevalence of mental health problems among middle-aged individuals and seniors.

Finally, we show that exogenous provision of accurate statistical facts about the prevalence of symptoms of serious mental health problems across generations increases allocations towards young adults. The change in allocations reflects an increased prevalence of altruistic and reduced prevalence of spiteful behavior towards the youngest group. The effects hold both shortly after the provision of the information, and in a follow-up, conducted three weeks after the information treatment. Furthermore, we show that the information treatment increases people's stated support for policies aiming to increase access to mental health services and financial support for young adults, but this effect seems more temporary.

This paper contributes to several bodies of work. First, it provides the first controlled experimental test, and evidence, of preference-based discrimination against young adults. Despite the importance of age-based discrimination, inter-generational experiments focusing on how people condition their social behavior on the age of their partner are exceedingly scarce, relative to evidence on discrimination in other domains, such as ethnicity, gender or sexual orientation.<sup>4</sup> Charness and Villeval (2009) conduct the first inter-generational experiment, by sampling juniors (under 30) and seniors (over 50) and measuring stereotypes about seniors and how cooperation rates are affected by age composition in strategic environments. Enke, Rodríguez-Padilla, and Zimmermann (2022) study universalism, using experimentally validated hypothetical allocation tasks in the US. They find that people are more prone to allocate money to recipients from their own generation as compared to recipients from a different generation, in line with the view that social preferences are affected by the relative age of the recipient. However, their study is not designed to uncover which generations—relatively younger, older or both—are discriminated as the age of the recipient is not specified in those tasks.<sup>5</sup> Our findings relate to recent work in social psychology that employs non-behavioral measures and documents unfavorable attitudes towards young adults, such as survey questions on perceived negative traits or thermometer survey question (Farkas et al. 2007; Brown 2013; Francioli and North 2021). We document youngism in a set of consequential money-allocation tasks, compare its magnitude relative to discrimination in other more widely-studied domains, and show that this bias in social preferences is robust across a range of socio-economic groups. The latter aspect relates our paper to recent efforts to test important features of economic preferences in experimental tasks implemented on large, representative samples (Almas, Cappelen, and Tungodden 2020; Cettolin and Suetens 2019).

Next, our results speak to recent studies that test malleability of preferences and behaviors towards discriminated groups. One approach has been to test the role of important personal experiences during childhood and adolescence, such as inter-group contact (e.g., Rao 2019; Burns, Corno, and La Ferrara 2018; Lowe 2021) or education and mentoring interventions (Cappelen et al. 2016; Kosse et al. 2020). In an effort to identify approaches that could affect attitudes of the adult population, researchers have recently started to explore whether a provision of information about the disadvantages faced by

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<sup>4</sup> Controlled economic experiments have mostly been employed to uncover discriminatory preferences based on ethnicity (e.g., Bernhard, Fischbacher, and Fehr 2006; Bauer et al. 2018; Berge et al. 2020; Finseraas et al. 2019), political views (e.g., Kranton and Sanders 2017; Kranton et al. 2020), sexual orientation (e.g., Baert 2018) or membership in artificially created groups, using minimal group experimental paradigm (e.g., Tajfel and Turner 1979; Chen and Li 2009; Kranton et al. 2020).

<sup>5</sup> Several papers study how generalized trust and social preferences develop with age. Social preferences are documented to evolve during childhood and adolescence (for a comprehensive review, see (Sutter, Zoller, and Glätzle-Rützler 2019), while the differences in the level of generalized social behavior across different stages of adulthood were found to be relatively small (e.g., Sutter and Kocher 2007; Fehr, et al. 2003). This line of work does not study age-based discriminatory preferences, i.e. how subjects condition behavior on age of the recipient. We speak to this work by showing that the prevalence of age-based discriminatory preferences increases with age of decision-maker.

immigrants, specifically the fact that they face discrimination, affects attitudes towards this group (Alesina et al. 2018; Haaland and Roth 2023). While (Alesina et al. 2018) find that provision of information about teachers' own implicit stereotypes against immigrants reduces discrimination in grading of immigrant students in Italy, providing evidence of immigrants' facing discrimination on the labor market has not created more favorable attitudes towards immigrants in the US (Haaland and Roth 2023). This paper provides the first causal evidence on how to reduce inter-generational bias in social preferences, by implementing a novel information intervention that reveals disproportionate hardship faced by the discriminated group in terms of psychological well-being, i.e. a form of hardship that is easy to understand and imagine. Our results suggest such information can trigger empathy and affect social preferences, even when hardship is presented as a statistical fact.<sup>6</sup>

Our findings have a clear policy relevance, given that measuring symptoms of depression and anxiety in large-scale surveys is becoming increasingly common (Ridley et al. 2020). Such data typically serve as an input for policy-makers and practitioners designing programs focusing on improving mental health.<sup>7</sup> We show that diffusing information among the broad public is another potentially fruitful use of such data: it may trigger empathy and change behavior towards groups facing disproportionate hardship in some societies.

Finally, our results add to growing evidence showing that young adults are a high-risk group, in terms of reported symptoms of depression and anxiety, relative to other age groups (McGinty et al. (2020) and Thomas et al. (2021) for the US and Banks and Xu (2020) for the UK). In this paper, we show that broad public is not aware of this form of inter-generational health inequality, at least in the setting we study, in line with the evidence documenting a strong social stigma associated with mental health problems (Schomerus et al. 2012) and the observation that young adults are motivated to present themselves as happy and successful (Turetsky and Sanderson 2018). In addition, we document that this lack of awareness matters, because it shapes people's social behavior and public policy support (at least temporarily) towards young adults.

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<sup>6</sup> More generally, these findings relate to a growing experimental work on misperceptions and information interventions (e.g., Bursztyń, González, and Yanagizawa-Drott 2020; Settle 2022; Haaland and Roth 2022). As described in recent excellent reviews (Bursztyń and Yang 2022; Haaland, Roth, and Wohlfart 2022), the existing experiments have been generally successful in documenting belief updating in response to provision of statistical facts. However, although exceptions exist (Bursztyń, González, and Yanagizawa-Drott 2020; Bartoš et al. 2022), most of the information interventions studied so far have failed to find impacts on actual behavior, especially when measured with a delay, perhaps due to regression of perceptions to the mean or motivated memory (Bordalo, Gennaioli, and Shleifer 2020). Our results suggest that information about mental health problems are resilient to these forces.

<sup>7</sup> In fact, our original motivation for longitudinally measuring symptoms of mental health problems was to estimate the effect of the Covid-19 pandemic in the Czech Republic and to find out which social groups were the most affected. The surprisingly high prevalence, and magnifying Covid-19 impacts, on symptoms of depression and anxiety among young adults documented in our policy brief (Bartoš et al. 2020) were used as an input and prompt for governmental discussion to promote awareness of the problem and greater access to mental health counseling in Czech schools. Later, we decided to use this data set as a factual basis for the intervention studied in this paper.

The remainder of this paper proceeds as follows. Section 2 describes the tasks designed to measure inter-generational discriminatory preferences, the data collection focusing on measuring actual and perceived distribution of symptoms of depression and anxiety across generations, and finally it discusses the design of the main experiment focusing on the effects of diffusing information about mental-health hardship on social behavior. Section 3 presents the results and Section 4 concludes.

## **2. Experimental Design**

The study is based on two companion data collections. First, Section 2.1. describes the main experiment, designed to uncover age-based discriminatory preferences and to test the causal role of information about the distribution of mental health hardship. Second, Section 2.2. describes the supplementary data collection that was implemented before the main experiment. It contains longitudinal data on the actual distribution of symptoms of mental health problems in the population, and measures of people's beliefs, in order to quantify possible misperceptions and to allow exogenous manipulation of beliefs about which age groups are affected by this form of hardship. Figure 1 provides a graphical timeline of both data collections.

### **2.1. Main experiment**

#### **2.1.1. Sample**

The main experiment was conducted among a large, nationally-representative online sample of adults (N=2,027). We took advantage of the online infrastructure of a leading data-collection agency in the Czech Republic (NMS Market Research and PAQ Research), using the largest online panel in the country (Czech National Panel). By design, the sample is broadly representative of the adult Czech population in terms of age, sex, education, employment status, municipality size, and regional distribution (Table A1). In terms of age, which is of special interest for us, the sample includes adults aged 18-92 years, with mean age equal to 48.2 years. In some of the analysis, we divide the sample into four sub-samples based on age: 18-24, 25-44, 45-64, 65+, to mimic the age categories of the recipients in the allocation tasks. Each of these groups is relatively sizeable, with a somewhat lower representation of the youngest group since it covers the shortest age range. Specifically, the number of observations is 162 for 18-24 years old, 736 for 25-44 years old, 640 for 45-64 years old and 489 for 65+ years old.

We elicited the experimental tasks twice among the same subjects—in Wave1 that took place in October 2020 and in Wave2 three weeks later. Since the information intervention was implemented in Wave1, this allows us to estimate both the immediate and the longer-term effects of the information intervention.

### **2.1.2 Eliciting pro-social and anti-social preferences**

To measure pro-social and anti-social preferences, we administered a series of allocation tasks that we label a Help-or-Harm task (HHT) (Bartoš et al. 2021). The HHT task combines features of the well-established Dictator game and the Joy of Destruction game (Abbink and Sadrieh 2009). The participants were asked to increase or decrease rewards to a set of people with different characteristics. The default allocation was CZK 100 (USD 4). Participants could keep the money at the level of the default allocation (an active choice was needed), increase the reward to any amount up to CZK 200 (USD 0-8) or reduce the rewards up to CZK 0, using a slider located in the middle of the 0-200 scale (see Figure A1).

The advantage of implementing a salient reference point is that we can identify the prevalence of pro-social as well as anti-social behavior. We denote behavior as pro-social when subjects choose to increase rewards above CZK 100, revealing that a participant cares positively about the recipient. Next, we refer to behavior as anti-social when subjects allocate less than CZK 100 to the recipient, since in order to do so they have to actively cause financial harm with no pecuniary benefit to themselves. Thus, such behavior cannot be explained by selfish motivations. Further, the instructions made it clear that the decision makers could not also be receivers, in order to avoid the potential role of indirect reciprocity. For simplicity and to economize survey time, there were no pecuniary costs for the decision-makers when they were choosing whether to engage in pro-social or anti-social behavior (there were costs only in terms of effort). In Section 2.1.4, we describe the reliability of these measures.

### **2.1.3 Manipulating age of a recipient**

In order to identify whether a participant behaves differently to recipients from different age groups, and thus to measure discrimination based on age, each participant made four decisions in the HHT. Each of these four choices affected a recipient of different age, specifically a recipient aged 18-24, 25-44, 45-64 and 65+ years. Online Appendix, Section 3 presents specific wording of the decisions. The order of these four decisions was randomized at the individual level. The subjects knew that thirty participants would be randomly selected and one of their choices would be implemented.<sup>8</sup>

We interpret differences in allocations as evidence of preference-based discrimination, because recipients are completely passive and anonymous, and thus differences in allocations cannot be explained by beliefs about future back transfers (statistical discrimination). Further, given that our sample covers the whole age span of the adult population, this design allows us to measure two types of age-based discriminatory preferences: youngism, measured as the difference in allocations to relatively

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<sup>8</sup> In total, each participant made 21 choices in HHT, out of which one could have been payoff relevant. Besides the four allocations to recipients of different ages, each participant made 17 decisions affecting recipients with various other characteristics (nationality, region of residence, political orientation, ethnicity, religion), allowing us to compare the magnitude of discrimination based on age with other dimensions of discriminatory behaviour, e.g. ethnic discrimination. It was randomly determined at the individual level, whether the four decisions affecting recipients of different age were made before or after these 17 decisions.



younger individuals as compared to recipients from one's own age group, and oldism, measured as the difference in allocations to relatively older individuals, as compared to one's own age group. Finally, since the HHT tasks allow us to distinguish pro-social and anti-social behavior, we can investigate whether age-based discrimination reflects a lack of pro-social preferences towards a given age group, or whether it reflects stronger anti-social preferences (such as spite), a socially more dangerous form of discriminatory preferences.

#### **2.1.4. Validation of preference measures**

We find several re-assuring patterns, suggesting that the preference measures are reliable and that subjects paid attention to the decisions. First, in line with a host of studies documenting systematic links between experimental measures of social preferences and real-life social and political behavior (e.g., Enke, Rodríguez-Padilla, and Zimmermann 2022; Rustagi, Engel, and Kosfeld 2010; Almas, Cappelen, and Tungodden 2020), we find the choices in HHT to be intuitively linked to stated policy preferences. The greater is the amount allocated to others, the greater is the stated support for governmental policies providing financial support to others. In addition, when we explore specificity of this relationship, we find that the positive links tend to be larger when allocations in HHT and support for policies concern the same generation (coefficients on the diagonal of Table A2), as compared to when allocations and support for policies target different generations (coefficients away from the diagonal). For example, the correlation between allocations to recipients 18-24 y/o and stated support for financial subsidies for 18-24 y/o is 0.46, while the coefficient diminishes to 0.27 and 0.12 when we correlate it with support for policies helping financially middle-aged group and seniors, respectively. Similarly, the correlation between allocations to seniors and support for financial help to seniors, middle-aged, and young adults is 0.56, 0.26 and 0.17, respectively.<sup>9</sup>

Second, people make relatively consistent allocations across the two waves of experimental data collection. In the CONTROL condition, the correlations between Wave1 and Wave2 allocations are high and the patterns of age-based discrimination are very similar across waves, as we describe below (Columns 4 and 5 of Table 1).

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<sup>9</sup> In a similar vein, when studying allocations to other groups than those based on age, we also see intuitive correlations. The amount allocated to a migrant is negatively correlated with voting for a right-wing political party with anti-migration agenda (-0.12, p-value < 0.001), voting leave in a hypothetical EU exit referendum (-0.16, p-value < 0.001), the support for authoritarian rule (-0.07, p-value < 0.001), and positively correlated with the support to accept Ukrainian refugees after the outbreak of the Russia-Ukraine war (0.15, p-value < 0.001). These correlations are close to zero and statistically insignificant if we use the amount allocated to a person in the Czech Republic instead of the amount allocated to a migrant (0.01, p = 0.797 for voting right-wing; 0.03, p = 0.194 for voting leave; 0.00, p = 0.986 for the support of authoritarian rule). We also see a negative correlation between voting leave in a hypothetical EU exit referendum and amount allocated to a person in the EU (-0.16, p < 0.001).

### **2.1.5 Information intervention**

The participants were randomly allocated to either the HARDSHIP (n=1,035) or the CONTROL (n=992) condition in Wave1. In the HARDSHIP condition, they were provided with actual information about the prevalence of symptoms of mental health problems among the Czech adult population. The data included in the HARDSHIP condition are based on measures from a longitudinal survey of the Czech adult population, described in greater detail in Section 2.2. The prevalence of mental health problems was measured by a set of questions selected from batteries of questions developed by psychologists and predictive of professional diagnosis of depression (PHQ, Kroenke and Spitzer 2002) and anxiety (GAD, Spitzer et al. 2006).

The information was provided on three screens. The first screen informed the participants that a repeated survey among a sample of about 2,500 people monitoring their mental health documents that the proportion of people who exhibit symptoms of at least moderate depression or anxiety increased during the first Covid-19 pandemic wave more than three times, from 6% to 22%. The second screen provided textual information about the differences between various age groups, specifically that the most heavily affected were young people under 25. The third screen displayed a graph showing the development of the prevalence of symptoms of depression or anxiety over time for people from four different age groups (18-24, 25-44, 45-64, 65+), documenting that the youngest cohorts were systematically more likely to suffer from the symptoms of depression and anxiety both before and during the Covid-19 crisis, as compared to other age groups. Specifically, for young adults, the prevalence of symptoms was 12% before the pandemic, it increased to 36% one month after the start of the pandemic (March 2020) and later it decreased to around 22% (June 2020). Throughout the studied period, the prevalence of mental health problems among other age groups was roughly half of the levels observed for the young adults.

On average, respondents spent less than one minute inspecting the provided information on these three screens. Further, in order to increase credibility of the information, the respondents were offered a possibility to obtain a hyperlink to the research study from which the graph was taken. About a half (46%) of the respondents expressed interest (and got the link after the survey ended), indicating high levels of genuine interest in the provided information. In the CONTROL condition, the participants did not receive any information about the survey focusing on mental health. The rest of the survey was identical for the HARDSHIP and the CONTROL conditions. The complete wording of the experimental protocol is available in Online Appendix, Section 3.

We do not observe systematic differences across conditions in terms of observable characteristics, indicating that randomization was successful (Table A1). In terms of attrition, the participation rate in Wave2 is high (90.6%) and does not differ across conditions (Table A3). We also find no evidence of differential attrition by baseline covariates, suggesting that different types of individuals were not participating in the HARDSHIP and CONTROL conditions in Wave2.

### **2.1.6 Outcomes: pro-social and anti-social behavior, policy support**

Our main goal is to estimate whether the HARDSHIP condition affected social preferences, especially towards young adults, as measured in the allocation tasks (HHT). In addition, we also test the effects on support for governmental policies aiming to improve mental health and financial situation. First, we asked respondents to report how much they think that the government should support and invest into services focusing on mental health, such as phone crisis hotlines or availability of specialists, focusing on (i) young people (18-24 years old), (ii) middle-aged people (25-64 years old), and (iii) seniors (65+ years old). Second, in order to gauge whether the effects of the intervention are specific for policies on mental health or whether they are more general, we asked to what extent the government should support people from the same three age groups financially. For all six questions, respondents reported their answers on a 0-100 scale. Both types of outcomes – choices in HHT and policy support – were collected twice, once on the same day when the intervention took place and in a follow-up wave three weeks later.

### **2.1.7. Additional design features**

We have implemented several design features that speak to concerns whether the effects might be driven by priming, rather than by the provided information and belief updating about the prevalence of mental health problems. First, priming effects are thought to operate via increased salience of certain constructs and thus should be short-lived. To attenuate possible priming effects, we included a series of questions on respondents' demographics between the information intervention and the questions measuring the outcomes of interest (choices in HHT and policy support). Further, to study whether the length of the time period between information provision and questions on outcomes of interest matters—which could suggest that priming may actually play a role—we exogenously manipulated the number of questions between the treatment and outcomes (11-15 vs. 28-32, depending on household characteristics). Reassuringly, the observed effects of the information intervention on behavior in HHT are similar when the outcomes are measured shortly after the intervention and with a longer delay. Perhaps most importantly, the effect on social behavior is persistent, holding three weeks after the intervention, long after any priming should play a role.

Second, in principle, the provided information could have primed subjects about COVID-19 crisis, since the provided information contained information about mental health mostly during the crisis. To level the extent of thinking about COVID-19 across the conditions, before making choices in the HHT tasks, all participants were asked to respond to two questions related to COVID-19 vaccination. Also, if priming the respondents with the topic of COVID-19 or mental health problems, rather than positive updating about hardship of young adults specifically, was to drive the results, we would expect to observe similar treatment effects on increased allocations to recipients of all age categories. In contrast, we observe the treatment effect to be stronger on allocations and policy support targeting young adults, as compared to older middle-aged adults and seniors, suggesting that subjects recalibrated their beliefs after reading the provided information.

These patterns also speak to a potential concern about experimental demand effects, and the possibility that the treatment effects on behavior towards young adults might be driven by a desire of respondents to please the experimenters by acting kindly to the group most affected by mental health problems. In particular, the demand effects struggle to explain the persistence of the treatment effects on social behavior. Furthermore, it is noteworthy that experimental evidence shows that demand effects in experiments are in general likely to be small (DeQuidt, Haushofer, and Roth 2018) and moreover, the online interface, as compared to the standard laboratory experiments, arguably reduces motivations to please research organizers.

## **2.2 Supplementary survey on mental health**

In the supplementary survey, implemented before the main experiment, we measure (i) the prevalence of the symptoms of depression and anxiety, and (ii) beliefs about the prevalence of these symptoms in the Czech population. The data serve two main purposes. First, by comparing beliefs with the true prevalence of mental health problems, we measure the extent to which people misperceive the prevalence of mental health problems among various age groups. Second, we use data on true prevalence of mental health problems as factual input for the HARSHIP condition of our main experiment, in order to causally manipulate the beliefs in this domain.

### **2.2.1 Sample**

The survey module was integrated into a longitudinal study (Live during pandemics), among the sample ( $N = 2,167$ ) that is broadly representative of the adult Czech population in terms of sex, age, education, region and employment states (Table A4).<sup>10</sup> Prague and municipalities with more than 50,000 inhabitants are oversampled (boost 200%). The survey was implemented by the same data collection agency as the main experiment (NMS Market Research and PAQ Research). In the main experiment we made sure the participants were different from those from the supplementary survey but were sampled from the same population (participants of Czech National Panel), in order to maximize comparability.

A battery of questions on the prevalence of mental health problems was implemented during six waves of data collection between March and June 2020. In the analysis, we use the sample of 1,964 respondents who participated in all six waves. The results are very similar when we compute the prevalence of mental health problems among all respondents participating in each wave and also when we weight the observations to be representative of the Czech adult population. Beliefs about the prevalence of mental health problems were elicited once, in September 2020 ( $N = 2,167$ ).

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<sup>10</sup> Given that we work with an online sample, the older participants might be more active and socially connected, as compared to similarly aged individuals who do not use internet and thus cannot be members of this panel, potentially leading to an underestimation of mental health problems among the oldest category. Nevertheless, we note that the main focus of the paper is on well-being of young adults, i.e. the age category for whom selection based on Internet usage is much less of a concern.

### 2.2.2 Measuring symptoms of mental health problems

In each wave, we asked a battery of questions predictive of professional diagnosis of depression and anxiety, developed by psychologists (Ridley et al. 2020). This battery includes six questions selected from the Patient Health Questionnaire depression scale (PHQ-8) (Kroenke and Spitzer 2002) and from the Generalized Anxiety Disorder scale (GAD-7) (Spitzer et al. 2006). Specifically, the respondents were asked to report how often they have been bothered by the following problems over the last two weeks: (i) trouble falling or staying asleep, or sleeping too much, (ii) feeling nervous, anxious or on edge, (iii) poor appetite or overeating, (iv) feeling tired or having little energy, (v) little interest or pleasure in doing things, (vi) becoming easily annoyed or irritable. For each question they could choose from four possible answers: not at all (0 points), several days (1 point), more than half the days (2 points), nearly every day (3 points); for the full wording, see Online Appendix, Section 3. We construct an index of depression and anxiety symptoms by taking the sum of the points in all six questions, which ranges between 0 and 18 points. Our main variable of interest is a dummy variable equal to one if a respondent scored at least 8 points in this index, indicating moderately severe or severe symptoms of depression or anxiety.<sup>11</sup>

All six waves of this data collection took place during the Covid-19 pandemic. In order to obtain a measure of the prevalence of mental health problems before the pandemic started, we asked the respondents to answer the battery of six questions retrospectively, i.e. to report to what extent the specific problems bothered them during two weeks preceding the outbreak of the pandemic in the Czech Republic, i.e. three months before they answered these questions. Based on these questions, 6% of the respondents suffered from moderately severe or severe symptoms of depression or anxiety before the pandemic. This estimate obtained by using the retrospective questions is consistent with other pre-pandemic surveys implemented on different samples, e.g. with the data from The Institute for Health Metrics and Evaluation, which indicates the prevalence of these symptoms among 7-8% of the population in the Czech Republic in 2016.

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<sup>11</sup> To economize time of the respondents, we have included six selected questions from the total of fifteen questions in PHQ-8 and GAD-7 scales. To verify that this selected set of questions provides a reliable measure of symptoms of depression or anxiety, in one of the waves we asked the respondents to answer the full PHQ-8 and GAD-7 questionnaires. Respondents who reach at least 10 points in PHQ-8 (GAD-7) are commonly classified as having symptoms of moderately severe or severe depression (anxiety), in which case a counselling session with a psychologist or a psychiatrist is recommended. The correlation between the dummy variable we use to indicate symptoms of moderately severe or severe symptoms of depression or anxiety based on the set of selected six questions and the classification based on the full battery of fifteen questions is 0.8. Compared to the full PHQ-8 and GAD-7 questionnaires, our measure provides the same positive diagnosis of depression or anxiety in 89% of cases (test sensitivity) and the same negative diagnosis in 97% of cases (test specificity). This means our measure performs at least as well as the two-item PHQ-2 and GAD-2 sometimes used in the literature (Kroenke et al. 2010; Staples et al. 2019). In our sample, PHQ-2 has a test sensitivity (specificity) of 0.79 (0.97) as compared to PHQ-8, and the correlation between the two dummies indicating symptoms of at least moderate depression is 0.73; Similarly, GAD-2 has a test sensitivity (specificity) of 0.91 (0.97) as compared to GAD-7, and the correlation between the two dummies indicating symptoms of at least moderate anxiety is 0.77.

### **2.2.3 Beliefs about distribution of mental health problems**

In order to elicit quantitative point beliefs, we asked the respondents to provide their best estimate of the prevalence of people with symptoms of at least moderate depression or anxiety in March 2020 (first wave of Covid-19 pandemic), for four groups: the population as a whole, young people (18-24 years old), middle-aged people (25-64 years old) and seniors (65+ years old). As a benchmark, we informed the participants about the prevalence of these symptoms among the whole adult population before the pandemic started (6%). Providing such an anchor can reduce measurement error. The belief elicitation was not incentivized, in part because previous research has documented that incentives have little effect on stated beliefs in other than political domains (Haaland, Roth, and Wohlfart 2022).

There are several reasons why we decided to measure beliefs among a different sample of participants than those who participated in the information provision experiment. First, asking the participants in our main sample about their prior beliefs might draw excessive attention to the topic, thus potentially increasing the risk of experimenter demand effect. Second, since we elicit beliefs about mental health problems for various age groups, the task might increase cognitive strain and survey fatigue, which may in turn induce measurement error. Third, we aim to evaluate the effect of a simple information provision that might eventually be used in practice at larger scale. Thus, the survey was designed to create a naturally looking environment resembling a real-world situation when people receive simple information and then make decisions, without being asked questions on prior beliefs about facts that are later revealed in the treatment, and thus may create a feeling of being tested.

At the same time, we note that a limitation of this approach is that we cannot estimate heterogeneous treatment effects by prior beliefs. The ability to do so would be especially useful if different groups of respondents updated their beliefs in opposite directions, e.g. if some originally underestimated and others overestimated the true share of young people with mental health problems. In such a case, the effect of the intervention might go in opposite direction for these two groups and the observed average effect would be muted. However, before implementing the main experiment we knew this was unlikely to be the case in the population we study, since a vast majority of respondents (95%) underestimated the share of young people with mental health problems, as we document below.

## **3. Results**

We will describe the results in three steps. First, we document a systematic bias in social preferences against the young adults in the allocation tasks. Second, we provide evidence of misperceptions about prevalence of depression and anxiety among young adults. Finally, we estimate the causal effects of providing accurate information about age distribution of mental health problems on social preferences and discrimination against young adults.

### 3.1. Youngism in Social Preferences

We find that participants condition their allocation decisions on age of the recipients, and allocate systematically less money to younger recipients as compared to older recipients. On average, recipients from the oldest generation (65+ y/o) are given CZK 147, the amount is reduced to CZK 135 for recipients from the upper middle-aged group (45-64 y/o), to CZK 125 for recipients from the lower middle-age group (25-44 y/o), and it drops further to CZK 113 for the young adults (18-24 y/o). All the differences in allocations are highly statistically significant (Panel A of Figure 2) and robust to controlling for observable characteristics or individual fixed effects (Table A5).

Next, we show that this form of age-based discrimination arises because decision-makers treat unfavorably *relatively* younger recipients, as compared to the recipients from their own age group or from older generations. Individuals who are relatively younger than the decision-maker receive CZK 30 less than recipients of similar age (Column 1, Panel A of Table 1). To further illuminate this pattern, we divide the sample into four age groups, mimicking the age categories of recipients, which allows us to directly compare the allocations to individuals of similar age to allocations to individuals from distinct age groups (Panels B - E of Figure 2). Participants who are 25+ years old allocate substantially less money to relatively younger individuals than they allocate to individuals from their own generation. This pattern holds for the seniors as well as middle-aged groups, and the greater the age distance, the lower is the allocation. Seniors are the group that engages most in the discriminatory behavior against young adults: they allocate CZK 104 to the youngest group, while they allocate CZK 157 to seniors.

In contrast, we do not detect any statistically significant difference in behavior towards relatively older individuals (Panel A of Table 1), as compared to behavior towards own generation. Thus, the observed behavior towards younger people is not an outcome of general in-group favoritism of recipients from one's own generation, but of a systematic discrimination of relatively younger individuals by most of the adult population. This can be seen when analyzing social behavior of individuals who make allocation decisions to both relatively younger and older recipients. Middle aged individuals (25-44 and 45-64) allocate similar or slightly higher amounts to individuals who are relatively older, as compared to members of their own generation, and these amounts are higher when compared to allocations to relatively younger people (Panels B and C in Figure 2).

The only age group that discriminates seniors are the young people (18-24). While their average allocation to recipients from their own age group is CZK 139, it drops to CZK 121-124 to recipients from older age groups. Thus, the magnitude of discrimination of seniors by the youngest participants is much (approximately three times) smaller in magnitude, as compared to discriminatory behavior exhibited by the seniors when allocating money to relatively younger recipients.

Several additional results suggest that the observed unfavorable treatment of young adults reflects a serious form of animosity. First, we test whether the differences in allocations in the Help-or-Harm

task reflect a lower willingness to act pro-socially, i.e. to increase the allocation above the default allocation, or whether they reflect a greater willingness to act anti-socially, i.e. to reduce the allocation below the default allocation. In Table A6, we show that the observed discriminatory behavior towards the young adults is driven both by less prosocial and more anti-social behavior towards the young adults. Specifically, for the senior decision-makers the prevalence of pro-social behavior is 74% when the recipient is also a senior, 50% when the recipient is 45-64 y/o, 37% when the recipient is 25-44 y/o and 28% when the recipient is from the youngest age group (18-24 y/o). Moreover, the prevalence of anti-social behavior is only 5% when the recipient is from the oldest generation, and it increases to almost 26% for the youngest age group. The increase in anti-social behavior (and reduced prosocial behavior) towards the youngest group, as compared to own age group as well as the oldest group, is also clear for the middle-aged decision-makers, but magnitudes are somewhat smaller.

Next, we take advantage of the fact that we used the same experimental tasks to uncover discriminatory preferences in multiple domains, in addition to age, in order to gauge the relative size of youngism in social preferences, as compared to discriminatory preferences based on ethnicity, political views, locality or nationality. In Figure A2, we show that discrimination against relatively younger individuals is similar in magnitude to discrimination against immigrants or foreigners. It is somewhat smaller than discrimination against the Roma minority and it is larger than discrimination of people with different political views.

We provide several robustness tests of the observed discrimination of younger adults. First, the estimated discrimination is robust to various sets of control variables (Table 1). Second, in the main analysis we pool choices of participants in the CONTROL condition from two rounds of data collections, implemented three weeks apart. The pattern of discrimination is very similar when choices are analyzed separately in each round (Columns 4 and 5 of Table 1). Third, the use of “within-subject” design, as compared to “between-subject” design, when eliciting behavior towards individuals with different group attributes has the advantage of identifying discriminatory preferences at the individual level and boosting number of observations, but it can potentially affect the size of the estimated discrimination if subjects realized the purpose of the study. In principle, social desirability biases could reduce the estimated levels of discrimination if some subjects choose to hide their true preferences, while experimenter demand effects may induce subjects towards greater differentiation in behavior. In Table A7, we show that the main pattern holds when we restrict the sample to only the very first decision made by each participant, and thus effectively mimicking a “between-subject” design, suggesting that the use of within-subject design does not drive the observed discriminatory behavior. Fourth, the lower willingness to help the youngest generation is also present in responses to survey questions about support for policies targeting different generations (Table 2).

Finally, we take advantage of the size and diversity of our sample, and explore possible heterogeneity across observable characteristics of the participants. We find that the unfavorable



treatment of the young adults is a robust behavioral regularity that holds across gender, income groups, education levels, mental health, although the point estimates are somewhat larger for participants with a below median income and those with more symptoms of mental health problems (Figure 3).

To summarize, we find a robust evidence of systematic preference-based discrimination against young adults by the middle-aged, and especially strongly, by the seniors. While people seem to care to a similar extent about well-being of their generation and relatively older generations, they seem to lose empathy, or feel envy, towards relatively younger people. Next, we will explore one potential source of the lack of empathy—misperceptions about hardship faced by this group—and a way to tackle it.

### **3.2. Misperceived Mental Health of Young Adults**

We start by describing the actual prevalence of mental health problems, across different age groups, as measured among the “Life during Pandemics” longitudinal panel of respondents (N= 1,964). As our main measure of mental health problems, we report the share of respondents with moderately severe or severe symptoms of depression or anxiety (further in the text denoted as “symptoms of depression or anxiety” or as “symptoms of DA”), based on an index constructed from answers to a battery of six questions, as described in Section 2.2.2. Around 6% of people had symptoms of depression or anxiety before Covid-19 crisis and the prevalence of these symptoms has more than tripled, to 22% during the first wave of the pandemic (Bartoš et al. 2020). Reassuringly, we find several intuitive relationships: the measured symptoms of DA are positively correlated with being a single parent (0.06, p-value = 0.007) and recently experiencing a large income drop (0.17, p-value < 0.001).

Importantly, we find substantial and robust heterogeneity in the prevalence and severity of mental health problems, across age groups. Panel A of Figure A3 shows that the youngest cohorts were substantially more likely to suffer from symptoms of DA both before and during the Covid-19 crisis, as compared to other age groups. For young adults, the prevalence of symptoms was 12% before the pandemic, increased to 36% roughly one month after the start of the pandemic (March 2020) and decreased to around 22% three months later (June 2020). Throughout the studied period, the prevalence of symptoms of DA among other age groups was roughly half of the levels observed for the young adults. For example, the prevalence of symptoms of DA in March 2020 was 36% for 18-24 y/o, 19% for 25-44 y/o, 21% for 45-64 y/o and 13% for seniors (65+ y/o). The corresponding numbers for June 2020 were 22%, 9%, 10% and 7%. We arrive to similar conclusions when, instead of using the cutoff to create a dummy variable indicating the serious symptoms of DA, we use the index constructed by taking the sum of points in all questions, reflecting how often respondents suffer from various types of problems, which takes values 0-18. The index is also systematically higher for young adults compared to other age groups (Panel B of Figure A3). Similarly, the age differences can be also seen when analyzing separately the responses to questions designed to detect symptoms of depression and anxiety (Panels C and D).

Next, we show that most people are unaware of such age-based inequality in the prevalence of symptoms of DA and they systematically underestimate the prevalence of mental health problems among young adults. The beliefs about the average prevalence of mental health problems in the overall adult population are quite accurate—the respondents estimated that the overall prevalence of symptoms of DA was 22.15%, which is broadly in line with the actual prevalence of these symptoms (19.8%). However, people hold inaccurate beliefs about which age groups were more or less affected (Figure 4). Specifically, participants expect the oldest group to suffer the most and the youngest group to suffer the least from the symptoms of DA. First, respondents heavily underestimate the prevalence of symptoms of DA among young adults, believing that only 11% suffered from symptoms of DA while the actual number is 36%. Put differently, 95% of respondents underestimated the prevalence of mental health problems for this group (Table A8). Second, people overestimate the prevalence of symptoms of DA among seniors, believing that 28% suffered from these symptoms, while the actual share was 13%. Third, the beliefs are relatively accurate for the middle-aged group. To summarize, participants believe that the prevalence of mental health problems strongly increases with age while the opposite is the case.

The underestimation of the mental health problems among young adults is widespread across various demographic groups. Using the detailed background data, in Table A9 we divide the sample in 49 sub-groups, based on age, gender, education, income, economic status and geographical regions. The underestimation of mental health problems among young adults is present for at least 90% of people in virtually all sub-groups we analyze, with only four exceptions, such as young adults themselves. For this group, the prevalence of underestimation is still high (84%) but lower than the average, in line with intuition.

To summarize, using longitudinal data with a well-established module monitoring symptoms of depression and anxiety, we find that young adults are around twice as likely to suffer from this form of health hardship. Next, we document that a vast majority of people across various demographic groups are not aware of this health inequality and believe that young adults are the least likely to have mental health problems. In the next sub-section, we test whether diffusing the accurate information affects social preferences towards young adults.

### **3.3. Fighting Youngism with Information Provision about Hardship**

In this sub-section, we first describe the effects of HARDSHIP condition on social preferences and support for policies aiming to help young adults, i.e. the group for which people systematically underestimate the mental health hardship. Then, we analyze the effects on older age groups.

We find that the HARDSHIP condition robustly increases allocations to young adults by CZK 6.3 (p-value = 0.002), from CZK 113.5 in the CONTROL condition (Figure 5 and Table A10). The estimated effects are lasting and robust. First, the effects are similar in magnitude and statistically significant when measured immediately after the information intervention (increase by CZK 6.0, p-

value=0.017) and when measured with the three-week delay (CZK 6.1, p-value=0.013). Second, the point estimates are robust to using various regression specifications, with different sets of control variables or to using a set of variables selected by a two-stage LASSO procedure (Figure A4 and Table A11). Next, in Table A12, we show that the treatment increases prevalence of prosocial behavior, as well as reduces prevalence of anti-social behavior towards young adults.

Finally, in Figure A5 we focus on heterogeneity of the estimated effects across various sub-groups, and find that the treatment effects are quite similar across gender, income, age and whether the recipient himself/herself had symptoms of depression and anxiety. The effects on behavior are somewhat larger for decision-makers with a university degree, compared to people with a lower level of education.

Next, we estimate the treatment effects on reported level of support for governmental policies aiming to increase access to mental health services and policies aiming to improve financial situation of the young adults. We find positive effects on both types of policy support (Panel A of Table 2, columns 1 and 2). Nevertheless, although the effects hold when respondents are asked on the policy support questions during the same survey wave as when the treatment is implemented (Panel B), the point estimates are positive but small and not statistically significant when policy support is measured three weeks after the treatment, suggesting the effects on stated policy support do not persist.

How does the information treatment affect the behavior towards recipients from the older groups, i.e. those for which people do not underestimate the prevalence of mental health hardship? We find that the effects of the HARDSHIP condition are still positive, but the point estimates generally decrease with the age of the recipient. Specifically, the treatment increases the allocations by 5.8 CZK for recipients who are 25-44 y/o, by 3.3 for recipients 45-64 y/o and by 2.6 CZK for recipients who are 65+ y/o. In terms of the effects on support for policies helping middle-aged individuals and seniors, we do not detect any meaningful effects (Table 2).

In Table A10, we test whether the effects of HARDSHIP on behavior and policy support of young adults are statistically significantly different from the effects on outcomes targeting middle aged individuals and seniors. The treatment effects on behavior towards young adults are larger than the effects on behavior towards seniors (p-value = 0.10) and older middle-aged individuals (p-value = 0.11), but not when compared to the effects on behavior towards the younged middle aged group (p-value = 0.73). The patterns suggest that participants remembered the age range of the group most affected by mental health problems in a relatively coarse way, and allocated more not only to the youngest group (18-24 y/o) but also to the second youngest group (25-44 y/o). This interpretation is consistent with the observed dynamics of the age gradient of the treatment effects, which is somewhat larger when estimated shortly after the information provision (when people were likely more able to recall differences in mental health problems across age categories), as compared to when the effects are estimated with the three-

week delay when the point estimates are more similar across age groups (Figure 5), in line with models of limited memory (Mullainathan 2002).

Further, interestingly, the observation that the provided information did not reduce allocations to seniors, although this is the group for which people overestimated the extent of mental health hardship, indicates that a reduction in perceived mental hardship faced by seniors does not reduce empathy towards this group.

Next, we consider whether the observed treatment effects could be explained by experimenter-demand effects or priming effects, perhaps due to a greater salience of mental health problems in general or the COVID-19 crisis, rather than due to learning about the hardship faced by the young adults specifically. Several patterns suggest that priming and experimenter demand are unlikely to explain our findings. First, we find that the effects of **HARDSHIP** on social behavior are not temporary. Exogenously adding more questions between treatment and choices in allocation tasks in the first wave has little effect on estimated treatment effects (Table A13). More importantly, we show the effects on social behavior hold three weeks after the intervention, well beyond the time when any contextual factors are thought to play a role. Second, the observation that the treatment effects are driven primarily by those participants in the **HARDSHIP** condition who expressed genuine interest in the provided information, by requesting to get a link to a study that contains more information after the end of the data collection, provides further support for the interpretation that the effects are driven by belief-updating based on the provided information. In contrast, if the effects were driven by experimenter demand or priming, there would be no reason to expect such pattern. Specifically, we find that the difference in allocations to young adults between individuals in the treatment group who did not express interest to receive the study (54% of those treated) and those in the **CONTROL** condition was negligible (CZK 0.66,  $p$ -value = 0.785), while people in the treatment group who were interested in getting the study (46% of those treated) allocated significantly more (CZK 11) as compared to the participants in **CONTROL** ( $p$ -value < 0.001).<sup>12</sup> Finally, the treatment effects are larger on social behavior and support for policies targeting specifically the young adults, i.e. the group most affected by the communicated form of hardship and for which people tend to underestimate the prevalence of mental health problems, again in line with the interpretation that the belief-updating caused the shift in social behavior.

#### **4. Discussion about external validity**

In this sub-section, we provide a brief contextualization and discuss aspects that we view as important when considering generalizability of the observed behavioral phenomena beyond the studied setting (List 2022). First, we note that the field experiment was implemented on large, online samples that are

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<sup>12</sup> Notice that the treatment effects on social behavior cannot be due to the additional information contained in the report, beyond those provided in **HARDSHIP**, because the link to this study was provided to participants only after the end of the main experiment.

nationally-representative, in terms of the range of observable characteristics, of adult population in the Czech Republic (Tables A1 and A4). The Czech Republic is a medium-sized country in the European Union which ranks close to the OECD average in terms of proxies of mental health (life satisfaction) and age structure of the population (share of elderly population), as well as in terms of a number of general socio-economics indicators (employment rate, fertility rate, years of education, student skills), with the exception of national income per capita which is approximately by 25% lower (OECD.stat). Also, the main findings—the existence of youngism in social preferences and the role of misperceptions about hardship—are robust across various socio-economic sub-groups, suggesting that the patterns of behavior are not driven by narrow sub-populations.

Second, in terms of the timing of the experiment, the data collection was implemented in fall 2020 during the Covid-19 pandemic, and thus during a period when inter-generational solidarity was of great importance, and thus potentially very much on people's minds. We elicited comparable preference measures twice, allowing us to document high levels of stability in inter-generational social preferences across the studied time period, which involves substantial variation in the severity of the infections rates.<sup>13</sup> Since we do not have comparable pre-pandemic measures though, we cannot rule out that the discriminatory behavior has become more or less pronounced during periods of crises. Nevertheless, the anecdotal evidence cited in the Introduction and the non-behavioral measures of attitudes towards young adults gathered pre-pandemic in the US (Francioli and North 2021) suggests that a lack empathy towards young adults is not phenomenon created by the Covid-19 pandemic.

Finally, in terms of scalability of the information intervention, we note two aspects. Interestingly, we find that the provided information treatment shapes pro-social behavior not only among the people who have personal experience with studied form of hardship (i.e., who experienced mental health problems themselves), and thus elevating empathy by shifting people's beliefs about prevalence of mental health hardship seems relatively widely applicable approach. In theory, the dissemination of information studied in this paper should have larger effects in those settings, the greater the prevalence of misperceptions about hardship faced by young adults. We studied this intervention in a country, in which symptoms of mental health problems are common among young adults, a pattern documented in several other countries, including the US and the UK. At the same time, because this is the first paper to elicit beliefs about which age groups are perceived as the most affected, we can only speculate how prevalent such lack of awareness about hardship of young adults is in other settings. Nevertheless, we suspect that people's (inaccurate) intuition that mental health problems, similarly as physical health deterioration, increases with age is not specific to the Czech Republic, potentially providing scope to create more understanding and empathy by diffusing accurate information about well-being.

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<sup>13</sup> We arrive to similar conclusion when when we exploit the regional variation in Covid-19 incidence during the data collection, measured as 7-day incidence per 100,000 inhabitants. The estimated discrimination against the younger generation, as well as the treatment effect on the amount sent in the HHT, are very similar in regions with below- and above-median Covid-19 incidence.

## 5. Conclusions

In this paper, we provide evidence of systematic, preference-based discrimination against young adults in controlled experimental tasks, and we show that it is partly due to inaccurate beliefs that young adults face relatively little hardship, as compared to other generations. We first show that people allocate substantially less money to individuals who are relatively younger, as compared to their own age group or the relatively older age groups. The observed discriminatory behavior of the young adults, particularly prevalent among seniors, is driven by both less prosocial and more anti-social behavior towards this group. This domain of discrimination is larger than discrimination of people with different political views and it is similar in size to discrimination against immigrants and foreigners. On the constructive side, we show that a part of this inter-generational divide is caused by a lack of empathy that can be reduced by a low-cost intervention. People hold misperceptions about the extent of hardship experienced by the young generation, as they systematically underestimate the prevalence of mental health problems among young adults. Provision of accurate information persistently increases prosocial behavior toward this group.

We note several potential implications and offer thoughts about directions for future research. In terms of political economy, our results may help to explain why many voters and politicians in a number of countries seem to place a relatively low priority on tackling policy issues that concern young generations. While the standard explanations highlight the aging profile of voters and the short-term time horizon of politicians, our findings suggest that this phenomenon may have additional, preference-based underpinning. The political competition in a population with a bias against younger generations is predicted to favor political parties that run with programs that accommodate the preferences of relatively older voters, at the expense of parties that focus more on the priorities of younger voters. Furthermore, to the extent political leaders are aware that most of the voters care more about the welfare of their own and relatively older generations, as compared to welfare of the younger generations, this may reduce their incentives to prioritize policies focusing on a more distant future.

Next, our findings suggest that better knowledge of well-being across generations may help to attenuate the inter-generational animosity. While in this paper we focus on estimating the impact of providing statistical facts about prevalence of anxiety and depression, a natural question is whether more intensive real-life inter-generational contact would have similar impacts. In light of the recent studies that have made progress to causally document the positive impacts of greater contact as a way to reduce unfavorable attitudes to ethnic minorities or the poor (Finseraas et al. 2019; Burns, Corno, and La Ferrara 2018; Rao 2019), our results lend some support to the hypothesis that social isolation of seniors (National Academies of Sciences, Engineering 2020) and less intensive inter-generational contact, both within families and in economic life due to retirement, may contribute to a lack of knowledge about challenges and hardship faced by the young adults. Relatedly, while our study focuses on misperceptions about mental health, generational misperceptions may occur in other domains too. Psychology and

philosophy discuss negative public views of younger generations—increased selfishness, lack of respect for authority and elderly, a strong preference for leisure—already since ancient times (Freeman 1908), even though recent empirical studies often find little factual basis for such stereotyping (Trzesniewski and Donnellan 2010).

In terms of the implications for the literature on mental health, we show that people inaccurately believe that symptoms of depression and anxiety go hand-in-hand with ageing, and thus they expect these challenges to be relatively scarce among young adults, in contrast to the measured facts. While in this paper we focus on estimating how these misperceptions lower people’s willingness to act pro-socially towards young adults, documenting these misperceptions on large representative sample is important also because they may create social and intra-personal pressure on the young generation (Turetsky and Sanderson 2018). Young people may feel expected to present themselves as happy and psychologically resilient, which may further magnify anxiety and reduce their motivations to seek psychological help. Uncovering the causal role of misperceptions about mental health on other outcomes, including stress and behaviors of young adults, is an important area for future research.

Social scientists have invested enormous efforts to understand the prevalence and sources of discriminatory behavior against minorities, migrants, elderly, LGBT+ and members of other nationalities. In contrast, biases in preferences and behavior against young adults have so far remained outside of the radar screens of systematic empirical enquiry. Yet, such domain of discrimination has potentially far-reaching implications for labor market outcomes, political economy, intergenerational solidarity and preferences for redistribution. We hope the sharp evidence of the high prevalence and malleability of discriminatory behavior against young adults documented in this paper opens up a research avenue for studying which factors fuel (anti)social preferences towards the younger generations and how to most efficiently fight this fundamental societal divide.

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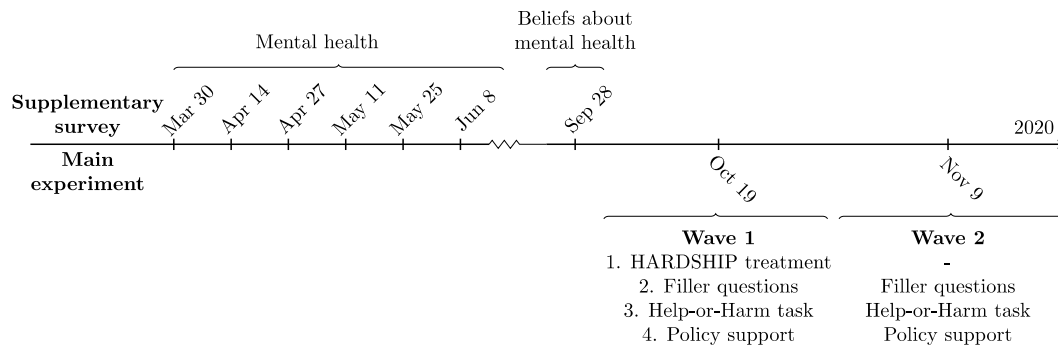


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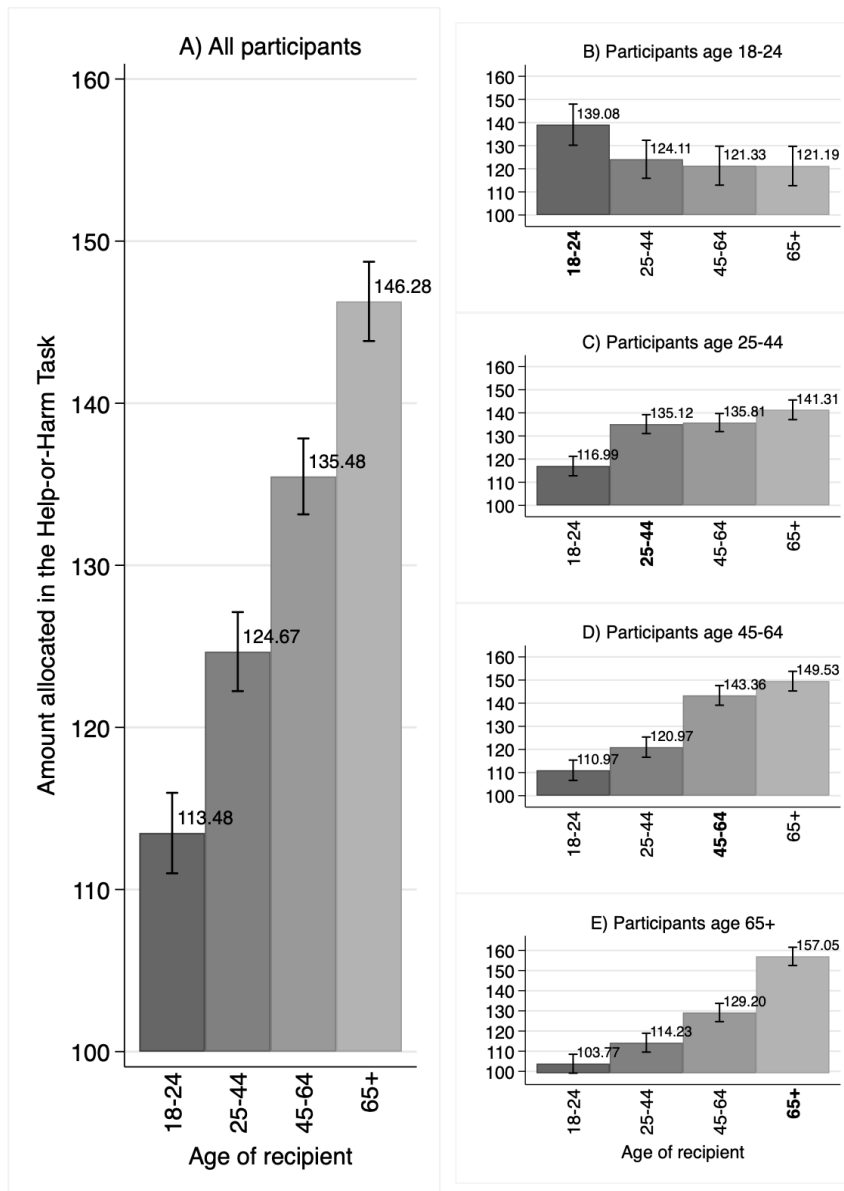
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**Figure 1. Timeline of both data collections**



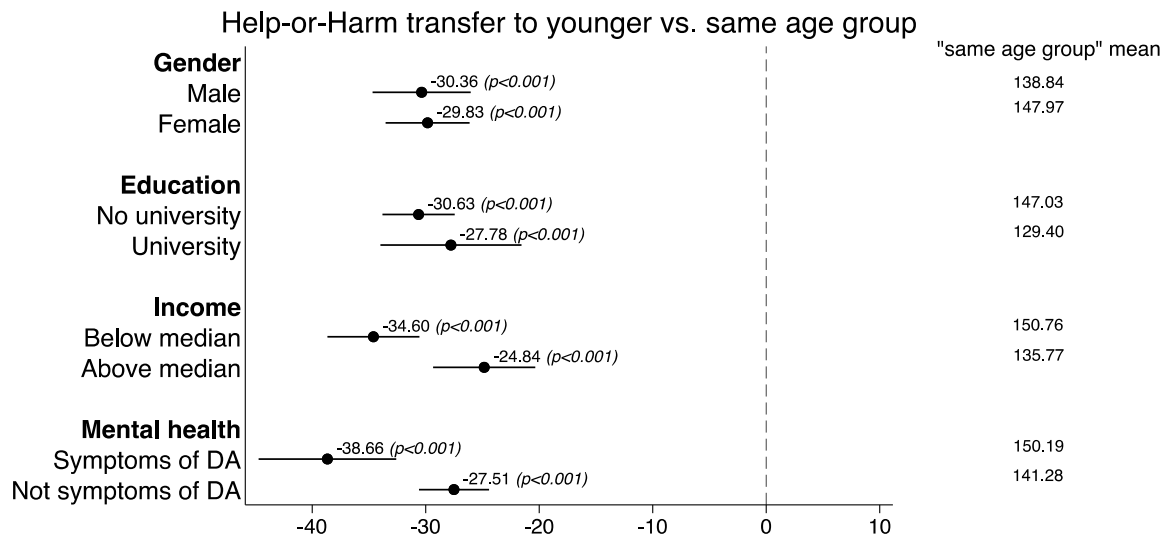
*Notes:* Timeline of the two surveys (Supplementary survey and Main experiment). Full script in Online Appendix: Mental health question wording in Section 3.5. Belief elicitation wording in Section 3.6. HARDSHIP treatment described in detail in Section 3.1. Filler questions wording in Section 3.2. Help-or-Harm task protocol in Section 3.3, including order randomization and random positioning of the age module. Policy support wording in Section 3.4.

**Figure 2. Documenting youngism: Allocations in the Help-or-Harm task to recipients of different age**



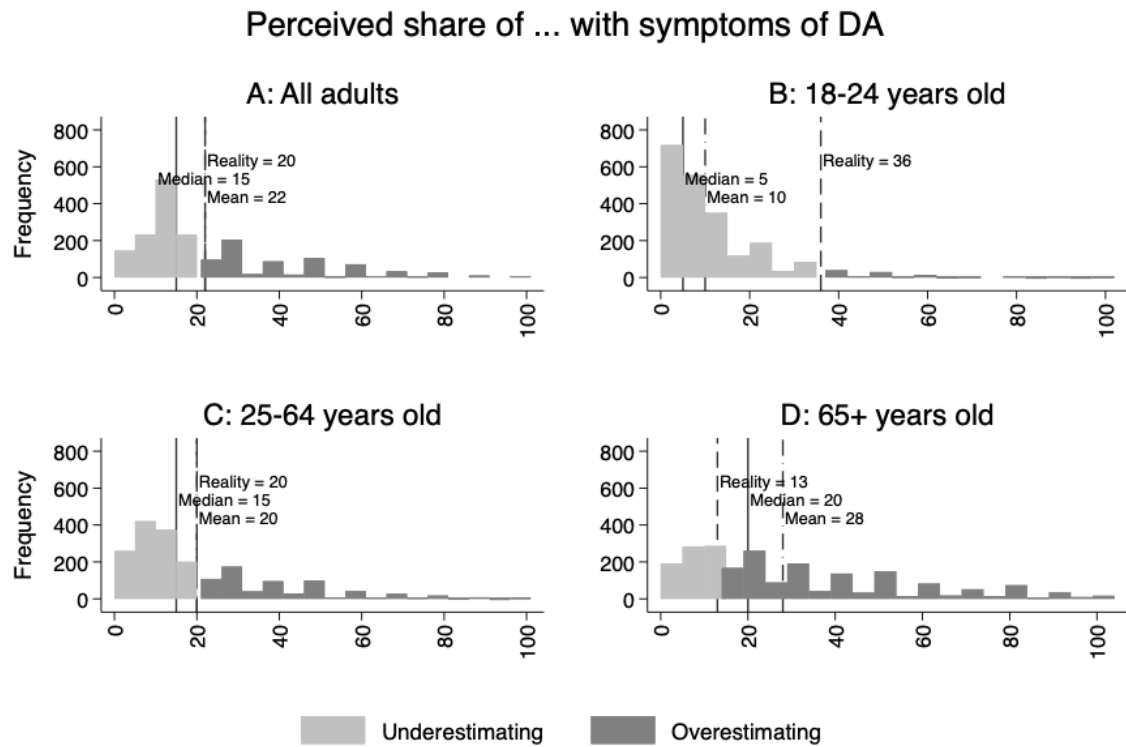
*Notes:* Allocations in the Help-or-Harm task by the age of the recipient. CONTROL condition respondent data for Wave 1 and 2 (three-week delay) used. Panel A reports data for all respondents, Panels B-E report data for subsamples of respondents in a specific age-range. The whiskers denote the 95% confidence interval based on standard errors clustered at the respondent level.

**Figure 3. Youngism in social preferences: Heterogeneity across sub-groups**



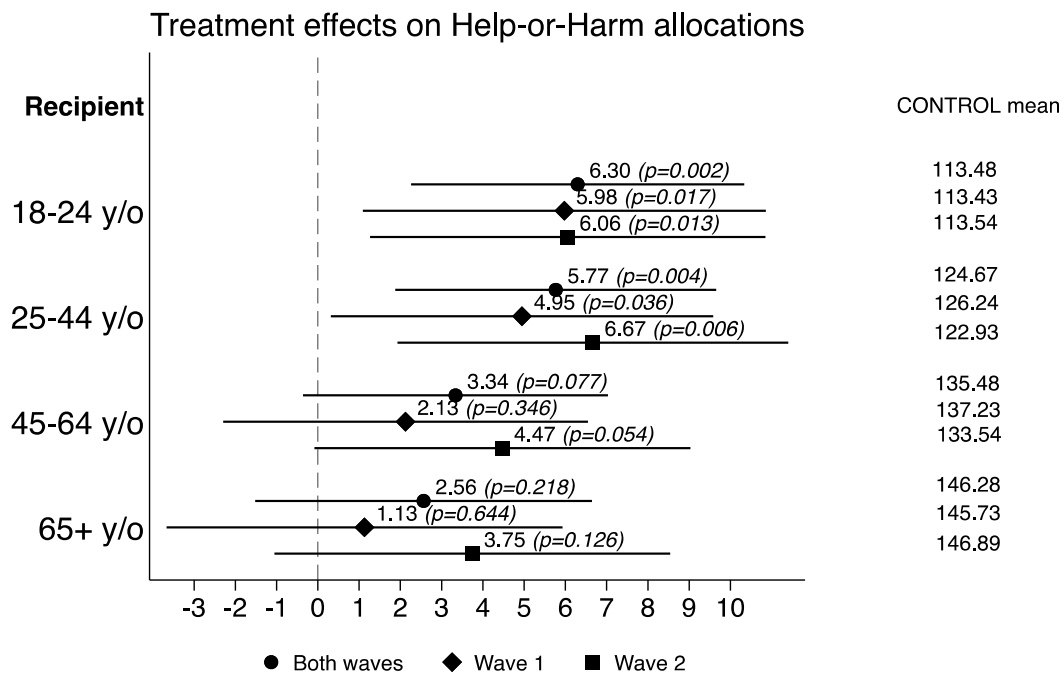
*Notes:* OLS coefficient plots. Estimated effects of the recipient being from the relatively younger vs. from the same age group as the respondent on allocations in the Help-or-Harm task. CONTROL condition respondent data for Wave 1 and 2 (three-week delay) used. The dependent variable is the Help-or-Harm task allocation in CZK. The regression controls for gender, age category (6 categories), household size, number of children, region (14 regions), town size (7 categories), education (4 categories), economic status (7 categories), household income (11 categories), a wave fixed effect, and the ordering of HHT allocations (24 combinations). The whiskers denote the 95% confidence interval based on standard errors clustered at the respondent level. The estimated effects and Student's t-test (two-sided) p-values are reported in the figure. No adjustments were made for multiple comparisons. We report estimates by respective respondent characteristics. The column on the right shows mean allocation for recipients in the same age group as the respondent.

**Figure 4. Perceptions of the share of people with symptoms of depression and anxiety (DA)**



*Notes:* Perceived share of people of different age groups with symptoms of depression and anxiety (DA). Sample from the Supplementary survey, beliefs were elicited in September 2020. Distribution of the prior beliefs of respondents about what percentage of people suffer from symptoms of DA during the first wave of the Covid-19 pandemic. Panel A reports beliefs about the whole adult population, while panels B-D report beliefs about the population in a specific age-range. The light and dark grey colours show the percentage of respondents who underestimate and overestimate the actual prevalence of symptoms of DA, respectively.

**Figure 5. Effects of the HARDSHIP treatment on allocations in the Help-or-Harm task**



*Notes:* OLS coefficient plots. Estimated effects of the HARDSHIP condition on allocations in the Help-or-Harm task. Main experiment sample. The dependent variable is Help-or-Harm task allocation in CZK. The regressions use the same set of control variables as Figure 3. The whiskers denote the 95% confidence interval based on standard errors clustered at the respondent level (circles) and based on Huber–White robust standard errors (diamonds and squares). The estimated effects and Student's t-test (two-sided) p-values are reported in the figure. No adjustments were made for multiple comparisons. Circles, diamonds, and squares denote results for specifications using data for both waves, wave 1, and wave 2 (three-week delay), respectively. The column on the right shows mean allocation in the CONTROL group. Regression results reported in detail in Table A10.



**Table 1. Effect of relative age of a recipient on allocations: Regression analysis**

Dependent variable	Amount allocated in the Help-or-Harm task				
	Wave 1 and Wave 2	Wave 1 and Wave 2	Wave 1 and Wave 2	Wave 1	Wave 2
	(1)	(2)	(3)	(4)	(5)
<b>Panel A</b>					
Recipient younger	-30.09*** (1.44)	-30.09*** (1.65)	-30.09*** (1.43)	-28.79*** (1.70)	-31.53*** (1.77)
Recipient older	-1.27 (1.51)	-1.27 (1.73)	-1.27 (1.50)	0.09 (1.78)	-2.82 (1.83)
<b>Panel B</b>					
Recipient one generation younger	-23.13*** (1.31)	-23.13*** (1.50)	-23.13*** (1.30)	-21.27*** (1.63)	-25.19*** (1.65)
Recipient two generations younger	-37.00*** (1.87)	-37.00*** (2.15)	-37.00*** (1.86)	-35.86*** (2.23)	-38.27*** (2.34)
Recipient three generations younger	-49.76*** (2.86)	-49.76*** (3.29)	-49.76*** (2.85)	-51.38*** (3.58)	-48.15*** (3.34)
Recipient one generation older	0.28 (1.44)	0.28 (1.66)	0.28 (1.44)	3.21* (1.73)	-3.04* (1.82)
Recipient two generations older	2.13 (2.25)	2.13 (2.59)	2.13 (2.25)	0.83 (2.61)	3.78 (2.72)
Recipient three generations older	-6.18 (4.25)	-6.18 (4.89)	-6.18 (4.23)	-4.25 (5.45)	-8.50 (6.01)
Control variables	baseline	individual x wave FE	LASSO	baseline	baseline
Mean recipient from same age group	143.43	143.43	143.43	142.92	144.00
Observations	7,528	7,528	7,528	3,968	3,560

*Notes:* OLS (columns 1, 2, 4, and 5) and double-selection LASSO linear regression (column 3) coefficients. Estimated effects of the recipient being relatively younger or older vs. same age as the respondent on allocations in the Help-or-Harm task (HHT). CONTROL condition respondent data for Wave 1 and 2 (three-week delay) used in columns 1-3, columns 4 and 5 use data for wave 1 and 2, respectively. The dependent variable is the Help-or-Harm task allocation in CZK. The regressions denoted with "baseline" use the same set of control variables as Figure 3; column 2 specification only controls for individual x wave fixed effects; column 3 uses LASSO selected controls. Standard errors clustered at the respondent level in columns 1-3 and Huber–White robust standard errors in columns 4 and 5. Panel B further disaggregates the relative age category differences between the respondent and the recipient. No adjustments were made for multiple comparisons. T-test p-values (two-sided) reported as \*p<0.10; \*\*p<0.05; \*\*\*p<0.01. Figure A4 reports results for a further range of specifications using different sets of control variables.

**Table 2. Effects of the HARDSHIP treatment on support for policies**

Dependent variable	Support for policy focusing on:					
	The young (18-24)		Middle generation (25-64)		The old (65+)	
	mental health	financial situation	mental health	financial situation	mental health	financial situation
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A: Average treatment effect</b>						
HARDSHIP	2.74*** (1.03)	2.24** (1.09)	0.87 (0.95)	1.63 (1.01)	-0.87 (0.91)	0.54 (1.03)
Control mean	61.05	56.28	67.31	69.25	78.24	73.06
Observations	3,864	3,864	3,864	3,864	3,864	3,864
<b>Panel B: Immediate effect</b>						
HARDSHIP	4.98*** (1.20)	3.38*** (1.29)	0.25 (1.14)	2.20* (1.18)	-1.73 (1.10)	1.43 (1.20)
Control mean	60.70	56.17	68.56	70.45	78.81	72.13
Observations	2,027	2,027	2,027	2,027	2,027	2,027
<b>Panel C: Three-weeks effect</b>						
HARDSHIP	0.43 (1.29)	0.84 (1.36)	1.58 (1.21)	1.02 (1.26)	0.05 (1.15)	-0.46 (1.25)
Control mean	61.44	56.40	65.91	67.91	77.60	74.10
Observations	1,837	1,837	1,837	1,837	1,837	1,837

*Notes:* OLS coefficients. Estimated effects of the HARDSHIP condition on support for policy. Main experiment sample. The dependent variable are measures of support for various policies (See Online Appendix 3.4 for full wording). The regressions use the same set of control variables as Figure 3. Standard errors clustered at the respondent level in panel A, Huber–White robust standard errors in panels B and C. No adjustments were made for multiple comparisons. T-test p-values (two-sided) reported as \*p<0.10; \*\*p<0.05; \*\*\*p<0.01.