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Norm Compliance and Lying Patterns: an Experimental Study Among Refugees and Non-refugees in Syria, Jordan, and Germany[#]

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Abstract

We report the results of an experiment on norm violation, specifically lying, in a repeatedly played mind game with Syrian refugees in Jordan and in Germany. We compare their behavior with Jordanians, Germans, and Syrians who still live in Syria. The average number of lies is amazingly similar – and low – across all five samples. However, the lying patterns of Syrian refugees are very different from non-refugee participants in Germany, Jordan, and Syria itself. After having lied once, refugee participants resort to a “never return”- pattern significantly more often than the non-refugee participants. A closer look at the socio-demographic characteristics of our Syrian refugee participants reveals that lying is associated with higher age and gender, while a longer stay in the host country is positively correlated with a lower likelihood of reporting extreme numbers of matches.

Keywords: Civil war; experimental economics; honesty; lying; psychological distress.

JEL codes: C93, D01, 015.

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Norm Compliance and Lying Patterns: an Experimental Study Among Refugees and Non-refugees in Syria, Jordan, and Germany

1. Introduction

Since the beginning of the civil war in Syria in 2011, more than 5.5 million Syrians have fled their country. More than three million have sought refuge in Turkey, more than one million in Jordan and almost one million in the European Union.⁶ The Syrian conflict is considered to be the largest humanitarian and refugee crisis of our time.⁷ Naturally, migrants take with them their norms and their culture. In this paper, we ask how Syrians adjust their behavior - and the norms underlying it - after the arrival in their new environment. We do so by focusing on the norm of honesty and ask whether lying of Syrian refugees differs from Syrians who have stayed in in their home country as well as that of participants in the experiment who live in either Jordan or Germany, that is, the new host countries of Syrian refugees.

Norms are core assets of societies as they help people to coordinate their behavior and to cooperate with each other. In our paper, we analyze compliance with the norm of not lying. Lying may be individually appealing in many circumstances, but it is likely to harm society as a whole: complying with the norm of not lying decreases negotiation and monitoring costs in all walks of life, reduces the length and cost of law cases, and increases the financial resources of the state substantially, as citizens truthfully report their incomes, and tax authorities need fewer tax collectors. In turn, compliance with the norm of not lying can save society's resources which can be allocated to more productive uses.

Although almost all societies know norms condemning lying, and there is evidence for a broad acceptance of the truth telling norm (Abeler et al. 2019), compliance with it varies significantly across societies. If illegal behavior –

⁶ All numbers according to UNHCR. <http://data.unhcr.org/syrianrefugees/regional.php>.

⁷ Filippo Grandi, the United Nations high commissioner for refugees. <https://www.unhcr.org/syria-emergency.html>

such as tax evasion and corruption - is widespread in a society, compliance with the truth-telling norm is low (Gächter and Schulz 2016). In other words, obedience to the norm seems to be determined largely by one's environment.

This finding leads to a follow-up question, namely how people behave once they live in a new environment. More specifically, how do migrants behave after settling in very different environments under (in most cases) quite dramatic circumstances without any prior preparations? Do they behave as they would do in their home societies, do they try to mimic the behavior frequently displayed in their host country, or (in the case of truth telling) do they avoid any action that might be perceived as lying whatsoever? Those questions are of major importance for industrialized countries as almost all have experienced substantial in-migration during (at least) the last decade. The new members of society are very likely to change the structure and the norms of the entire society. Our results help to understand the direction of this change.

We answer our research questions on the basis of a series of lab-in-the-field and online experiments with Syrians. Some of our Syrian participants are refugees in Germany, others are refugees in Jordan, and yet others still live in Syria. Participants in our experiments toss a fair electronic die for six rounds (Kajackaite and Gneezy 2017). In each round, participants are asked to predict privately the outcome of an electronic die (the computer in front of them randomly producing a number between one and six), and they receive a monetary reward only if they claim that the predicted number matches the number appearing on the computer screen. Since the number of matches is non-verifiable by the experimenter, lying cannot be analyzed on the basis of single events. Rather, we infer it based on the probability distribution of the number of matches and across repeated play by the participants.

Our findings indicate that overall, the behavior of refugees is remarkably similar to that of non-refugees. Refugees have a slightly higher likelihood to lie, although overall differences fail to reach significance. Yet, there is a noteworthy difference in how refugees lie: once refugees have lied, they are more likely to keep on lying for the remaining rounds of the game than the

non-refugees. It seems as if norm deviance follows a pattern. In other studies (Gomila and Paluck 2020), similar patterns have been reported.⁸

It is important to stress that our experiment cannot provide causal inferences, as the choice of remaining in Syria or becoming a refugee in another country is not random, and the distribution of the refugees to their host countries is not random either. Self-selection thus needs to be taken into consideration.⁹ What we can provide is empirical evidence regarding behavioral patterns of refugees regarding lying. In our post-experiment questionnaire, 92% of Syrians in Germany and 66% of Syrians in Jordan stated that they were willing to stay in Germany and Jordan, respectively. The ability to (re-)learn social norms in new contexts thus promises to be an important competence for those Syrians who plan to remain in their host country.

Our results add to three streams of literature. The first stream is the rapidly growing experimental literature on truth telling (Abeler et al. 2019 provides an almost complete overview). The second is the literature on the behavioral effects of civil wars (Bauer et al. 2016 is a recent survey). And the third is the literature on norm deviance (Jetten and Hornsey 2014). To the best of our knowledge, our paper is the first to conduct an experiment involving migrants who have experienced a civil war, while the civil war is still raging. We apply both choice measures and psychological distress tests, as we want to test whether there is a systematic association between being distressed and not telling the truth.

⁸ In their study on norm deviance, Gomila and Paluck find that Princeton students who deviate from the College norm of joining an ‘eating club’ have a past of norm deviance and feel different from the typical Princeton student compared to those who do conform with the norm. Their results point to the fact that norm deviation can follow a pattern.

⁹ Undertaking an experimental study outside the university lab with ‘real’ people on the field comes with inherent challenges that have to be evaluated by the researchers. However, endogenous sample selection due to incomplete control of the recruitment process has previously been mentioned as a potential criticism of inferences drawn from laboratory experiments with students as well as the fact that students might not be a representative sample for the extrapolation of results due to lack of variability in their sociodemographic characteristics (Harrison and List, 2004). In a way, the challenges that we face with our sample are not new and exclusive to our study.

To this end, we follow the experimental tradition initiated by Fischbacher and Föllmi-Heusi (2013) who analyze participants' incentives to lie when payoffs depend on the privately reported outcome of a random variable and not on an actual outcome of a random device. In their meta-study of 72 papers that have followed that lead, Abeler et al. (2019) identify three factors crucially influencing the propensity to lie: (1) the direct cost of lying, (2) the desire to acquire a reputation of being honest, and (3) the influence of social norms. Based on similar arguments, Gächter and Schulz (2016) show that the lying patterns observed can best be explained by a co-evolution of institutions and values. It seems that weak institutions, operationalized by them as widely present tax evasion and high levels of corruption, yield indirect costs as they undermine the possibly internalized social norm toward honesty and are associated with higher levels of lying.

We are not aware of any studies focusing on changes in truth telling as a consequence of a flight. Barr and Serra (2010) conducted an experiment with international students to analyze whether the tendency to bribe someone correlates with the amount of time spent living in the UK. The authors provide evidence suggesting that behavioral norms are not an immutable trait acquired in early years and then fixed for the rest of one's life. Rather, the more recently experienced institutional environment has important consequences on the norms held by their subjects.

In addition, arriving to a new country may decrease the likelihood individuals identify with the new society, at least at first.¹⁰ The social identity theory approach highlights the role of group identification in understanding behavior (Tajfel and Turner 1979) and specifically, conformity and deviance of norms¹¹ (Turner 1991; Brewer and Brown 1998). Norm conformity is

¹⁰ De Vroome et al. (2011) have found that refugees' self-identification with the host country is associated with their economic participation and social ties to hosts.

¹¹ In social psychology, social norms are described as the perceived desirable attitude or behavior of a group (Miller and Prentice, 1996) and the deviation from a norm is defined as behavior that exceeds the limits of established group norms (Marques et al., 1988).

rarely the default in society and both, conformity and deviation, are observed under specific conditions and in specific contexts (Jetten and Hornsey 2014). At least some refugees are confronted with an environment and a host society completely new to them and, hence, are likely to not identify with the host society entirely. This lack of self-identification can lead to norm deviance. In other words, individuals who strongly identify with a group will conform to social norms with a higher likelihood, even if such norms collide with their own personal interests. In turn, those who don't identify with a social group are more likely to challenge an established norm (Zdaniuk and Levine (2001). This insight is relevant for the integration of newcomers into their host society as measures that increase the level of self-identification of migrants with the new society can also positively affect norm conformity.

Yet, it is not only the past institutional frameworks and contemporary ones that affect behavior. A growing literature has evolved that inquires into how experiencing civil war and other kinds of extreme violence affects personal values and traits such as time preferences, the degree of acting altruistically, accepting risks, or the propensity to cooperate with others. In a seminal article, Voors et al. (2012) analyze behavior in post-conflict Burundi. They find that individuals having experienced violence themselves or living in communities that have been violently attacked display more altruistic behavior, but are also more risk seeking, and act less patiently. Following this approach, Gilligan et al. (2014) find that the experience of violence is associated with more altruistic giving, more contributions to public goods and a higher willingness to reciprocate among civil war victims from Nepal. Bauer et al. (2014) show that civil war victims from Georgia and Sierra Leone who experienced a greater exposure to war exhibited a higher degree of egalitarian preferences with regard to their own group, but not with their out-groups. Finally, Cassar et al. (2011) demonstrate that local trust levels among civil war victims from Tajikistan decreased, whereas trust in people living far away increased. The authors suggest that the conflict in Tajikistan can be described as of the "neighbor against neighbor" type. The inability to easily separate friend from foe is likely to make people more cautious and less trusting with regard to their immediate environment. Hence, although

the literature on the effects of war related violence on behavior does not focus on the norm of truth telling, it could be that extreme events such as experiencing a civil war or flight may affect truth telling significantly. The third section offers a number of conjectures about how this might be the case.

The rest of the paper is organized as follows. In Section 2, the experimental setup and basic characteristics of our participants are described. Section 3 introduces our behavioral conjectures. Section 4 presents the results, and Section 5 discusses our findings and concludes.

2. Experimental Design and Participants

2.1 The Game

For our experiment, we use an adjusted version of the mind game (Kajackaite and Gneezy 2017) in line with the type of mind games introduced by Fischbacher and Föllmi-Heusi (2013).¹² Participants are instructed to think of a number between one and six before a number between one and six is randomly generated and shown to them on the screen (the “outcome of an electronic die”). After observing the random number, participants are asked to report the number they had thought of before. Participants receive a payoff (50 points) if the reported number matches the outcome of the electronic die, but no payoff if the numbers do not match. They play the game six times in a row.

Dishonest claims of matches cannot be uncovered based on a single outcome. However, the game's design allows us to detect lying through probability calculations, both with regards to the distribution of reported matches within

¹² Prior to these two, variants of the mind game were used by a number of other scholars including Shalvi et al. (2011), Jiang (2013), and Potters and Stoop (2016).

different participant groups,¹³ and according to the reported individual sequence of matches.¹⁴

2.2 The Setup

The mind game experiment is part of a larger research project dealing with refugees and some of their basic socio-economic values such as: altruism, risk aversion, reciprocity, cooperativeness, and trust.¹⁵ The experiments were conducted between July 2016 and December 2017. All experiments were run as a lab-in-the-field study or online (especially inside Syria where we could not run lab-in-the-field-experiments due to security concerns).¹⁶

We used a variety of methods to invite individuals to participate in our experiments. First, we posted an invitational text on a social network group that we established in 2016 among Syrian refugees in Germany¹⁷ and later extended it to refugees in Jordan and Syrians inside Syria. We also distributed flyers at different university campuses in Jordan, Germany and Syria. In Syria, a call to participate in “an academic survey” was shared among the network members in Aleppo, Damascus, Homs, Hama, and Idlib (some of the regions were under control of the government, some under control of the rebels at the time of the experiments). The sample of

13 That is, in a group of honest participants, we expect to find zero matches in 33%, one match in 40%, two matches in 20%, three matches in 5%, four matches in 0.8%, five matches in 0.06%, and six matches in 0.002% of all cases (in other words, two out of 100,000 honest participants are expected to report six matches).

14 Since (true) matches are random events, the sequence of reported matches is expected to be serially uncorrelated. That is, the likelihood of truthfully reporting a match is independent of reporting a match or no match previously.

15 See our project’s website – *anonymized placeholder for website* - for more details. The mind game was always played at the end of the experimental session after participants played games on their general level of altruism, their risk attitudes, their reciprocity concerns, their cooperativeness and their trust.

16 Our experimental setting has been approved by the ethics committee for experimental research of the University of – *anonymized*. The authors are happy to provide further details upon request.

17 During our first pilot sessions to recruit refugees in reception camps in Germany, we discovered that social networks were their main means of digital communication rather than using emails.

individuals still living in Syria predominantly comprises students currently attending universities or institutes for professional training in neighborhoods stable enough at the time of the experiment for residents to attend higher education regularly. In Jordan, in addition to the social network group, both Syrians and Jordanians were recruited from two large universities and a NGO supporting refugees located in three different Jordanian governorates hosting the largest number of Syrian refugees in the country.¹⁸ In Germany, Syrian refugees were mainly recruited in different reception centers in Hamburg. Finally, German participants were invited relying on the subject pool of a university's experimental laboratory (*anonymized placeholder for citation*).

Participants were paid in cash by the experimenters in Jordan and in Germany, while payoffs in Syria were distributed by previously designated members of the social network group who did not participate in the experiment. The maximum our participants could earn in the mind game experiment was 3 Euros (claiming 6 matches each worth 50 cents), or the equivalent in Jordanian Dinars or US dollars (converted according to the purchasing power parity based on a typical meal bought in each country).¹⁹ The instructions of the game were formulated in neutral language (see Appendix AI).²⁰

2.3 Participants' Characteristics

At the end of the experimental sessions, participants were asked to answer a questionnaire consisting of four parts covering: (i) their socio-economic

18 These are Amman, Mafraq, and Irbid.

19 In Jordan, the most participants received was approximately 2.30 Dinar, and in Syria 3.60 Dollar. In Syria, participants at locations not under government control received their payments in cash. Participants at locations under governmental control were also offered their payment in cash. However, many participants did not pick up their payoffs for security reasons: they feared facing personal harm and security problems for receiving money from a foreign institution (a total of 49 participants remained unpaid). All participants who picked up their payoff confirmed their payment.

20 We ensure semantic equivalence by having an Arabic translation of the English instruction and a back-translation into English by another independent translator.

background, (ii) their flight experience (for the refugee participants), (iii) their current living situation, and (iv) a shortened version of the Harvard Trauma Questionnaire.²¹ We used an abbreviated version focusing on symptoms of post-traumatic stress disorder (PTSD), but no questions regarding the direct exposure to events causing those symptoms (such as combat exposure, physical childhood abuse, sexual violence, being threatened with a weapon), as we did not want to evoke memories of particularly atrocious events. Therefore, we do not interpret the resulting test score of the questionnaire as a PTSD measure, but rather as an indicator for subjects suffering from psychological distress at the time of the experiment.²²

At the time of the experiments, Syrian refugees had, on average, lived 1.3 years in Germany compared to 4.2 years in Jordan. In other words, most Syrian participants living in Germany arrived during 2015, while Syrian participants living in Jordan arrived mainly during 2013. Table 1 reports the general socio-demographic characteristics of our participants.²³ Eyeballing the table reveals that the five groups differ among a number of attributes which is associated with the self-selection issue already mentioned above. The average Syrian refugee who made it all the way to Germany is less likely to be female and married, has fewer kids, is less distressed, has achieved a higher level of education, and was somewhat wealthier prior to the civil war than the average Syrian refugee in Jordan. These same differences do not only apply to our sample but can be found among the Syrian refugee populations in the two countries as a whole. But there are, of course, also significant differences between the German participants and the other four groups, most notably the lower level of religiosity among the Germans – which is also representative of the entire German population. Similar

21 The full Trauma questionnaire was developed to detect refugees suffering from post-traumatic stress disorder (e.g., Mollica et al., 1997) and was subsequently modified for subjects from the Middle East region, especially from Iraq (Shoeb et al., 2007).

22 The questions we used are documented in the Appendix AII, general results are presented in Appendix AIII.

23 A table that reports significant differences is attached in the Appendix AIV, Table AI.

differences also apply when we compare Syrian refugees with Syrians who have stayed in their country. Given these differences in our samples, we need to control for them in our regression models.

Table 1: Socio-demographic Characteristics

Statistics	Germans	Jordanians	Syrians in Germany	Syrians in Jordan	Syrians in Syria
N	91	143	114	191	102
Importance of Religion	1.827	3.84	3.391	3.908	3.868
	(1.057; 1; 4)	(0.403; 1; 4)	(0.811; 1; 4)	(0.309; 1; 4)	(0.400; 1; 4)
Primary and Secondary Education	0.264	0.175	0.333	0.779	0.103
	(0.44; 0;1)	(0.38; 0;1)	(0.47; 0;1)	(0.42; 0;1)	(0.31; 0;1)
Currently a Student	0.143	0.524	0.417	0.158	0.670
	(0.35; 0;1)	(0.5; 0;1)	(0.5; 0;1)	(0.37; 0;1)	(0.47; 0;1)
Tertiary Education	0.593	0.300	0.250	0.063	0.227
	(0.49; 0;1)	(0.46; 0;1)	(0.44; 0;1)	(0.24; 0;1)	(0.42; 0;1)
Female	0.462	0.571	0.155	0.683	0.382
	(0.501; 0; 1)	(0.497; 0;1)	(0.363; 0; 1)	(0.465; 0; 1)	(0.490; 0; 1)
Age 16 - 26	0.209	0.727	0.567	0.495	0.872
	(0.41; 0; 1)	(0.45; 0; 1)	(0.5; 0; 1)	(0.5; 0; 1)	(0.34; 0; 1)
Age 27 - 36	0.165	0.133	0.236	0.184	0.098
	(0.37; 0; 1)	(0.34; 0; 1)	(0.43; 0; 1)	(0.39; 0; 1)	(0.3; 0; 1)
Age 37 - 46	0.165	0.056	0.038	0.189	0.020
	(0.37; 0; 1)	(0.23; 0; 1)	(0.19; 0; 1)	(0.39; 0; 1)	(0.14; 0; 1)
Age 47 - 56	0.143	0.056	0.047	0.100	0
	(0.35; 0; 1)	(0.23; 0; 1)	(0.21; 0; 1)	(0.3; 0; 1)	(0; 0; 0)
Age 57+	0.319	0.028	0.113	0.032	0.010
	(0.47; 0; 1)	(0.17; 0; 1)	(0.32; 0; 1)	(0.18; 0; 1)	(0.1; 0; 1)
Low Income	0.033	0.218	0.296	0.370	0.278
	(0.18; 0;1)	(0.41; 0;1)	(0.46; 0;1)	(0.48; 0;1)	(0.45; 0;1)
Middle Income	0.209	0.148	0.222	0.275	0.186
	(0.41; 0;1)	(0.36; 0;1)	(0.42; 0;1)	(0.45; 0;1)	(0.39; 0;1)
High Income	0.758	0.634	0.481	0.354	0.536
	(0.43; 0;1)	(0.48; 0;1)	(0.5; 0;1)	(0.48; 0;1)	(0.5; 0;1)
Distress Level	1.456	2.198	1.787	2.518	2.181
	(0.431; 1; 3.38)	(0.567; 1; 3.88)	(0.911; 1; 3.88)	(0.766; 1; 3.69)	(0.837; 1; 3.5)
Distress > 2.5	0.033	0.243	0.149	0.565	0.330
	(0.180; 0; 1)	(0.430; 0; 1)	(0.358; 0; 1)	(0.497; 0; 1)	(0.437; 0; 1)

Married	0.308	0.182	0.239	0.484	0.200
	(0.464; 0; 1)	(0.387; 0; 1)	(0.428; 0; 1)	(0.501; 0; 1)	(0.402; 0; 1)
Children	0.820	0.941	0.478	3.811	0.283
	(1.029; 0; 3)	(1.944; 0; 7)	(0.868; 0; 3)	(3.215; 0; 11)	(0.761; 0; 5)

Coefficients show mean scores for each sub-group and category. Standard deviations, as well as minimum and maximum values are shown in parenthesis. *Religion* is a variable running from 1 'not at all important' to 4 'very important' and denotes the importance of religion in life. The level of education is divided into three dummy variables for participants who either finished primary and secondary education, are currently students or finished tertiary education. *Female* is a dummy variable describing the gender of the participants. *Age groups* is a categorical variable describing groups of age from 1 to 7 that is divided into dummy variables with the lowest age group being from 16-26 years and the highest one above 57 years. *Income* describes participants' income at the household level prior to the civil war: from 1 'we did not have enough money even to buy a variety of food' to 5 'we could afford everything we wanted'. Likewise, it is divided into low, middle, and high income levels. *Distress Level* shows the average level of PTSD symptoms. Answers were coded on a scale from 1 ("not at all") to 4 ("extremely"). *Distress Level > 2.5* is a dummy for those that score above 2.5. If the average score is higher than 2.5, subjects are considered symptomatic for PTSD. *Married* is a dummy variable that shows the percentage of participants that are married and *Children* is a continuous variable which denotes the number of children that participants have.

3. Hypotheses

To generate hypotheses, we rely on the results from mind games reported in the literature on the one hand and on the behavioral impacts of experiencing civil war on the other. We also draw from the literature on norm deviance. The hypotheses to be presented in this section are partially incompatible, implying that they can be considered as being in a kind of horserace. This will help us identify the causal mechanism behind observed differences in lying behavior – if any.

Not only does a social norm condemning lying exist on a global scale, the observed lying behavior displays fairly little variation across countries. According to the meta-study by Abeler et al. (2019) that relies on 72 experiments conducted in very different environments, subjects on average forgo three quarters of the potential monetary gains from lying. Based on this finding, we propose

Hypothesis 1: Between the five different participant groups, no differences in the propensity to lie will be found.

The literature on the behavioral impacts of experiencing civil war has identified a propensity to behave more altruistically, to accept more risks, to be less patient, and to participate more in the provision of public goods. Yet,

it is unclear what this implies for the propensity to lie. In the experiment, no (potential) real-life interaction partner is damaged, and lying is completely risk-free. In turn, all Syrians no matter whether refugees or not have been affected by the civil war. It is very likely that they have also lost some wealth. Possibly, this increases the attraction of the monetary rewards and decreases the opportunity costs of lying. Based on this reasoning, one would expect

Hypothesis 2: There will be higher levels of lying among the three Syrian groups compared to the two non-Syrian samples.

Remember the finding that the institutional environment as well as current living conditions are likely to influence the propensity to lie (Gächter and Schulz 2016). The local level of tax evasion as well as the local corruption level were found to be good predictors for an individual's likelihood to lie. Given that the levels of both tax evasion and corruption in Germany are very different from the corresponding levels in Syria, we expect Syrian refugees now residing in Germany to behave differently than their compatriots who were still in Syria at the time of the experiment (with Syrians in Jordan supposedly somewhere in between these two samples). This leads us to

Hypothesis 3: Syrian refugees in Germany display a lower propensity to lie than Syrians in Jordan and in Syria.

Finally, we focus on norm deviance and social identity theory (Jetten and Hornsey 2014; Tajfel and Turner 1979). At least some refugees are confronted with an environment and a host society completely new to them. Presumably, as stated earlier, refugees who are forced to migrate, may show low levels of self-identification towards the new host society, at least at first. This lack of self-identification can lead to norm deviance. This is in line with the empirical findings of Zdaniuk and Levine (2001): individuals who strongly identify with a group will conform to norms even if such norms go against their personal interests. In turn, those who do not identify with a group will most likely deviate from a norm. Moreover, the relationship between norm deviance and lack of self-identification with a group can reinforce itself: individuals who choose to deviate from a norm, due to the fact that in the first place they did not identify with the social group around

them, may reinforce this lack of self-identification through their deviating behavior and in turn be more likely to deviate again in the future. As mentioned above, deviance can become a pattern: if the internal costs encountered after having tried lying once are low – in our setting no negative consequences follow at all – while lying is associated with a reward, the participant is more likely to lie the next round in the repeated interaction.²⁴ This leads us to

Hypothesis 4: Syrian refugees in Jordan and in Germany are more likely to sequentially lie in the mind game than the other three samples.

In our analysis, we focus on unlikely high numbers of matches reported between the number the participant claims to have had and the number that appeared on the computer screen. More specifically, we analyze subjects reporting four or more matches out of six repetitions. In doing so, the likelihood of wrongfully accusing subjects of not telling the truth is less than one percent.²⁵ To detect the kind of reinforcement mentioned in conjunction with Hypothesis 4, we make use of the individual patterns of participants playing the mind game: since reporting a match is financially rewarding, but not sanctioned even when it is a lie, the sequence of matches is likely to be serially correlated.

To analyze to what degree this kind of reinforcement is relevant, we introduce a variable that measures whether participants ever report a no match after having reported their first match. We propose to call the underlying structure a “no return”-pattern: for this, let us consider the sequence of matches among the six decisions in the repeated mind play. We denote a match between the number thought of and the randomly generated one with 1, while 0 denotes no match. Thus, for instance, the sequence

²⁴ As mentioned earlier, there is evidence in social psychology suggesting that emerging norm deviance is predominantly driven by deviating subjects who – unlike those conforming – report ex post a history of deviance and of feeling different from the typical member of their social group (Gomila and Paluck 2020).

²⁵ The expected probability of having four, five or six matches is 0.007.

100000 identifies the sequence in which a subject has a match in the first round followed by 5 no matches. We label all sequences with at least two “1” and no “0” following a “1” a no return-pattern.²⁶ The combined likelihood of all no return-patterns is 0.0167. Thus, the probability of wrongfully accusing subjects for not telling the truth is less than two percent.

4. Results

In the mind game, the dishonesty of a reported individual match is unobservable. However, our identification strategy uses two indicators revealing dishonesty on the aggregate level. First, the distribution of matches per person indicates dishonest reports across samples. Second, systematic patterns within the sequence of reported matches by persons serve as another indicator for truth telling.

4.1 Comparing the number of matches across samples

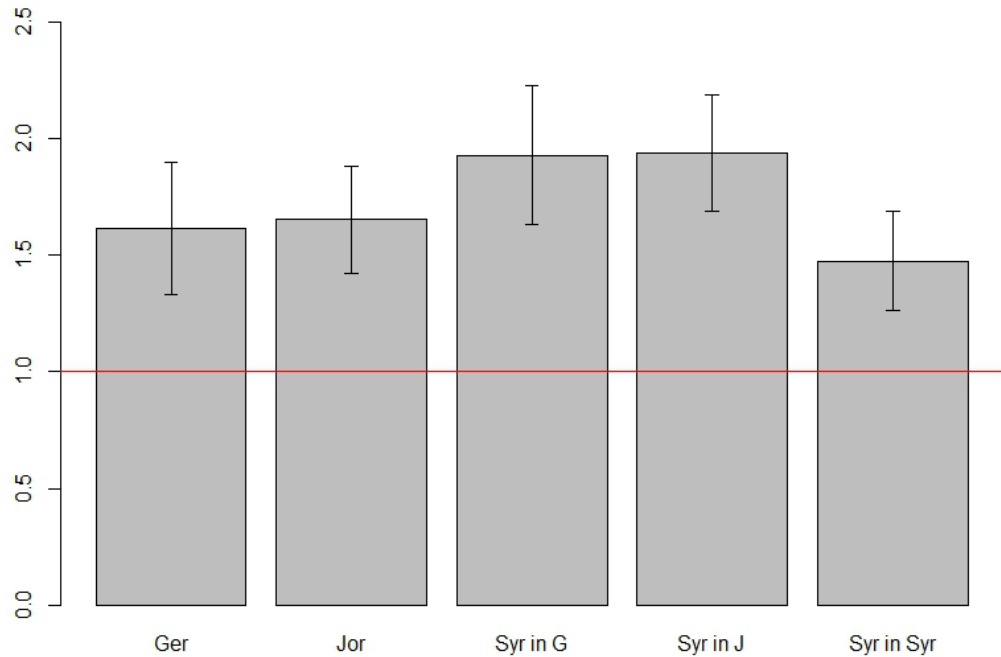
Beginning with the comparison across samples, the average number of reported matches per person in our samples is: 1.48 for Syrians in Syria, 1.94 for Syrian refugees in Jordan, 1.93 for Syrian refugees in Germany, 1.65 for Jordanians, and 1.62 for Germans (Figure 2). All averages indicate some lying as all differ significantly from the expected value of one match in six trials.²⁷ At the same time, they are completely in line with the findings reported by Abeler et al. (2019). Moreover, the average number of matches reported by Syrian refugees in both Jordan and Germany is higher than those reported by Syrians living in Syria, Jordanians living in Jordan, and Germans living in Germany. But since those differences are not significant, the findings are in line with Hypothesis 1.²⁸

²⁶ That is, the patterns are 111111, 011111, 001111, 000111, and 000011.

²⁷ $p < 0.01$ for all comparisons using subjects as independent observations; exact Wilcoxon- Mann-Whitney Test, two-sided.

²⁸ Comparing the refugee samples with the other samples reveals the probability of sample averages being equal using subjects as independent observations and exact Wilcoxon-Mann-Whitney Tests, two-sided, range from

Figure 2: Mean Number of Reported Matches



Red line indicates the expected value of one match; whiskers show the 95% confidence intervals.

For a more elaborate analysis, Figure 3 shows the distributions of reported matches per sample. Bars indicate the frequency with which participants reported matches in the experiment (ranges from zero to six). The red line illustrates the expected probabilities for the number of matches based on the binomial distribution for having zero to six matches when throwing a fair die six times in a row.²⁹ The results show a typical distribution of matches: in all samples, only a small minority of participants lies to the fullest extent possible. Rather, it seems that people are what Fischbacher and Föllmi (2013) refer to as “partial liars”: a low number of matches (zero, one) is reported significantly fewer times than expected according to the binominal

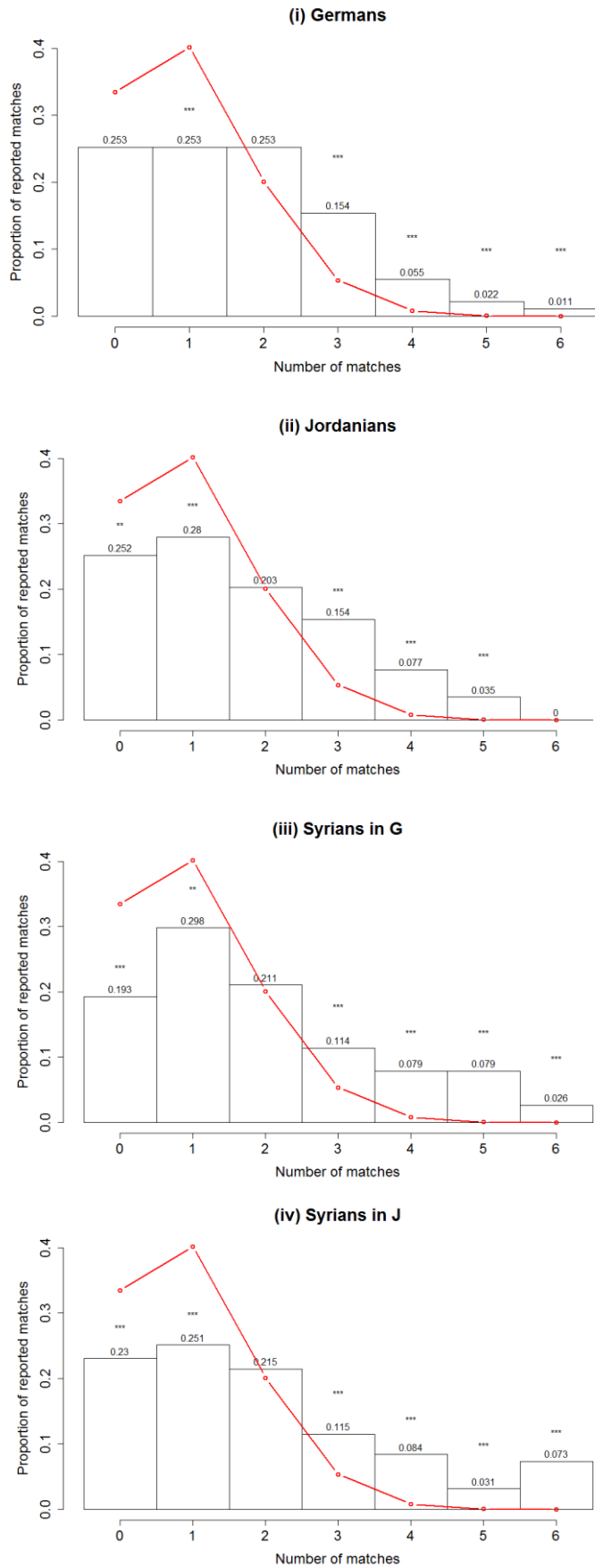
$p = 0.11$ (0.15) for Syrian refugees in Germany (Jordan) and Syrians in Syria, to $p = 0.28$ (0.34) for Syrian refugees in Germany (Jordan) and Germans (Jordanians).

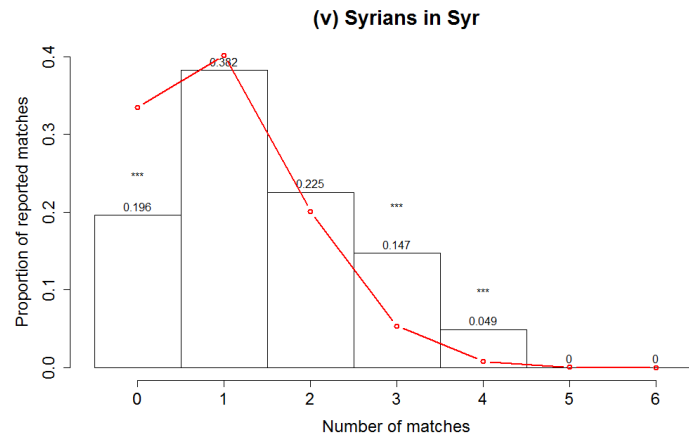
²⁹ The expected probabilities for 0 to 6 matches are: 0.33490; 0.40188; 0.20094; 0.05358; 0.00804; 0.00064; 0.00002, respectively. The asterisks indicate significant differences between the reported frequency of matches and the expected frequency according to a binomial test; ** $p < 0.05$, *** $p < 0.01$.

distribution. At the same time, there are significantly more people reporting an intermediate number of three or four matches than expected. Hence, there is little evidence suggesting that our sample differs in so far as a majority of participants exaggerates to some degree when reporting the number of matches, but not to the full extent.

A striking difference can be observed regarding the frequencies of extreme numbers of matches (five and six). Syrian refugees, in contrast to Jordanians, Germans, and even Syrians inside Syria, report an extreme number of matches significantly more often than the other groups. Three percent of the Germans, four percent of the Jordanians, and no Syrians living in Syria report five or six matches. However, about ten percent of Syrian refugees, both in Jordan as well as in Germany reported this extremely high (and unlikely) number of matches.

Figure 3: Proportion of Reported Matches





Red line indicates the expected frequency of matches; asterisks indicate significant differences between the reported frequency of matches and the expected frequency according to a binomial test; ** $p < 0.05$, *** $p < 0.01$.

As mentioned earlier, our more detailed analysis focuses on the very unlikely, very high number of matches (below 5%) to minimize the likelihood of wrongfully accusing subjects of not telling the truth. Table 2 shows the frequency of four or more reported matches across samples and results of two-sided proportionality tests indicating differences between samples.³⁰

³⁰ In the table, we focus on differences between refugee and non-refugee samples, all other differences are not significant according to conventional measures. Table AII in the Appendix AIV provides a robustness check applying the same analysis to the reports of 3, 4, 5, and 6 matches. Results are qualitatively similar, however, at a much lower level of significance.

Table 2: Statistical Significance of the Differences Between the Proportions of Participants that Report 4, 5 or 6 matches

p-values	Syrians in Ger (0.18)	Syrians in Jor (0.19)
Syrians in Syr (0.05)	0.004***	0.002***
Germans (0.09)	0.08*	0.02**
Jordanians (0.12)	0.19	0.12

Test results comparing the frequency per sample of participants reporting an extreme number of matches (four or more). Two-sided proportion test. The frequencies of reported matches are shown in parenthesis.

Syrian refugees both in Germany and in Jordan have a significantly higher frequency of reporting an extreme number of matches than Syrians in Syria or Germans, and almost significantly higher than Jordanians. Thus, it seems that refugees are substantially more likely to report an extreme number of matches than the corresponding home-town and new-host peers. In other words, being new in a new country increases the likelihood of reporting very extreme outcomes. These findings are not compatible with Hypothesis 1 (lying the same everywhere). They are also incompatible with Hypothesis 2 (everybody affected by civil war with higher propensity to lie). They are not easily compatible with Hypothesis 3 which posits that the new institutional environment is likely to be an important factor determining behavior. We would, accordingly, expect that Syrians in Germany would tend to lie significantly less frequently than Syrians in Jordan which is the case if we confine the analysis to extremely high number of reported matches only. Yet, given that the institutional environment in Jordan is somewhat better than that in Syria, we would expect Syrians in Jordan to lie somewhat less than Syrians in Syria which is clearly not the case.

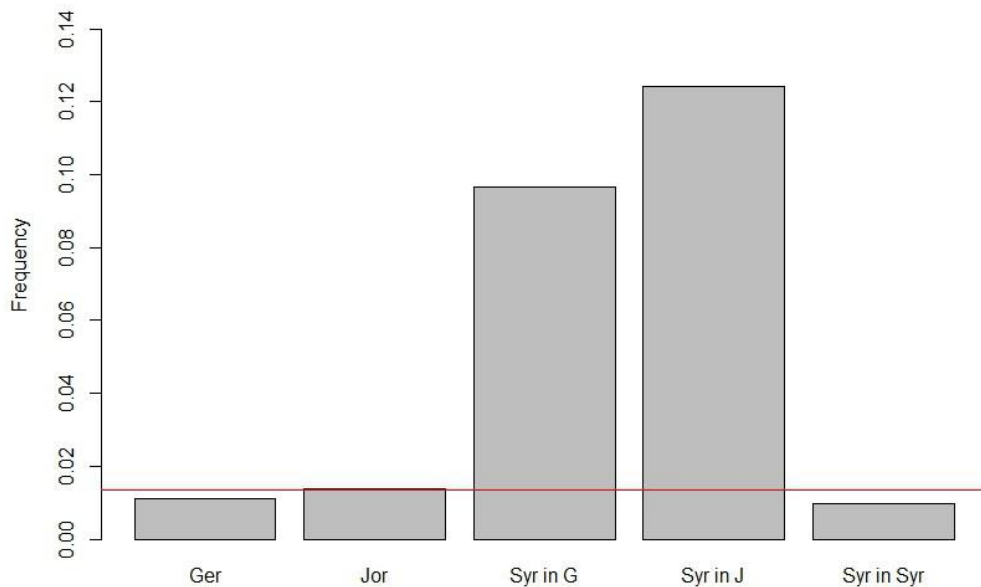
4.2 Choice Patterns

In the next step, we provide a closer look at the individual choice patterns of participants. For this, we make use of the fact that participants play six rounds of the mind game. This allows us to identify patterns that are very likely to be based on lies, specifically no return-patterns. We interpret reports that

follow these patterns as evidence for reinforcement of lying in the mind game.

Figure 4 shows the empirical frequencies by which we observe no return-patterns in the five sub-samples (the straight red line indicates the predicted frequency). Clearly, and supporting Hypothesis 4, refugees follow a no return-strategy far more often than their peers. That is, Syrian refugees in Germany are significantly more likely to follow this strategy than Germans and Syrians inside Syria ($p = 0.02/0.01$, 2-sample proportion test, two-sided). Likewise, Syrian refugees in Jordan are significantly more likely to follow this strategy than Jordanians and Syrians inside Syria ($p < 0.001/0.001$ 2-sample proportion test, two-sided). Furthermore, the frequency by which refugees in Germany (Jordan) report such a pattern is significantly different from the theoretically predicted one ($p < 0.001$, binomial test), whereas there are no further significant differences between other sub-samples nor are their frequencies significantly different from the theoretically predicted frequency.

Figure 4: Frequency of Choosing a No return-Pattern by Subsamples



Red line indicates the expected frequency.

Having established that the refugee sub-samples are far more likely to report an extremely high number of matches or a specific pattern, the natural follow-

up question is: are there specific socio-economic traits driving these choices? To answer this question, we rely on multivariate logit regression models on the choice patterns of refugees only (i.e., we apply the following analysis only to the refugee subsample). We test for extremely high number of matches (Model 1: *extreme*) and no return-patterns of refugees (Model 2: *no return*) as dependent (dummy) variables. In addition, we take a cross-sectional approach by specifically analyzing participants who do not only display a no return-pattern, but also declare at least four matches (i.e., an extreme number of matches), denoted as '*extreme no return*', separately (Model 3). Our independent variables include a dummy variable indicating Syrian refugees in Jordan (implying that Syrian refugees in Germany are the baseline for our estimates) and gender dummy variable for females. Income, age groups and level of education are divided into several binary variables, being *low income level*, *age 16 – 26*, and *primary and secondary education* the baselines respectively. Distress level is measured by a continuous variable ranging from 1 to 4 and the stated importance of religion is measured on a 4 point scale from 1 (“not at all important”) to 4 (“very important”). Finally, we include the variable *months* to measure the number of months a refugee had spent in Germany or Jordan at the time of the experiment. One could argue that the longer the Syrians have lived in their host countries, the more they could have adjusted their behavior to the local mores (“when in Rome do like the Romans do”). Accordingly, we would expect fewer instances of extreme lying the longer the refugees have already been in their host country (in accordance with Hypothesis 3).

Table 3 reports the estimates for mean marginal effects along with standard errors in parenthesis. The estimated marginal effects of Model 1 show that Syrian refugees in Jordan are marginally and significantly more likely to report an extreme number of matches than Syrian refugees in Germany. We also observe a stronger likelihood for older participants to over-report. Specifically, participants who are 57 years old or older are 44% more likely to report an extreme number of matches compared to the baseline of participants who are between 16 and 26 years old. After controlling for the different methods, the table shows that conducting the experiment through

the internet increases the likelihood of reporting a high number of matches compared to having a lab-in-the-field session. Supposedly, this is due to a higher perception of anonymity among the participants. Regarding no return-patterns (Model 2) and extreme no return-patterns (Model 3), female participants are significantly more likely to lie. Additionally, participants over the age of 57 are marginally significantly more likely to engage in no return patterns. Finally, distress levels are not significantly associated with any of the matching patterns analyzed here.

Table 3: Determinants of Extreme Lying

	<i>Dependent variable:</i>		
	extreme (1)	no return (2)	extreme no return (3)
Syrians in Jordan	0.209** (0.079)	0.058 (0.063)	0.093** (0.047)
Female	0.032 (0.048)	0.084** (0.037)	0.055* (0.029)
Age 27 - 36	0.070 (0.080)	0.075 (0.066)	0.063 (0.058)
Age 37 - 46	0.001 (0.082)	0.023 (0.060)	0.017 (0.045)
Age 47 - 56	0.322** (0.147)	0.167 (0.132)	0.147 (0.124)
Age 57+	0.495*** (0.172)	0.388* (0.212)	0.509** (0.225)
Currently Student	-0.019 (0.052)	-0.012 (0.034)	-0.010 (0.021)
Tertiary Education	-0.042 (0.069)	0.022 (0.067)	-0.009 (0.038)
Middle Income Class	-0.055 (0.047)	-0.016 (0.029)	-0.019 (0.019)
High Income Class	0.006 (0.051)	-0.047 (0.032)	-0.019 (0.022)
Distress Level	-0.014 (0.031)	-0.000 (0.022)	-0.005 (0.014)
Importance of Religion	0.006 (0.041)	-0.035 (0.025)	-0.013 (0.021)
Months	-0.005* (0.003)	0.001 (0.002)	-0.001 (0.001)

Lab	-0.082 (0.065)	0.048 (0.099)	0.009 (0.057)
Internet	0.162** (0.079)	0.087 (0.057)	0.075 (0.075)
Observations	243	243	243
Log Likelihood	-94.01	-68.61	-56.41
Akaike Info. Crit.	220.02	169.22	140.82

Note:

*p<0.1; **p<0.05; ***p<0.01

Results remain stable after adding an independent dummy variable for being married. The number of observation does not sum up to 305 (total of refugee subsample) due to missing values for some of the non-mandatory questions in the survey.

The results allow us to dive a bit deeper and inquire into the underlying factors determining such behavior. Syrian refugees in Jordan are significantly more likely than Syrians in Germany to report an extremely high number of matches. One reason behind this could be that refugees in Germany are financially far better endowed than refugees in Jordan. This finding is compatible with Hypothesis 2.

The number of months spent in the host country makes participants less likely to report an extreme number of matches. This finding is in line with Hypothesis 3 although the association is only marginally significant. But there is some indirect support for it: refugees who typically have less contact with the population of the host country (women and older participants) are presumably less familiar with behavioral norms in the host country, and report choices equivalent to no return - patterns. Thus, it seems likely that norm compliance of refugees undergoes a behavioral adaptation process that is partly moderated by financial considerations, and partly by unfamiliarity with the host country.

5. Conclusion

Research on the effects of experiences of violence, civil wars, and conflict on moral values and social preferences is in its infancy, and has mainly focused on survivors of war and conflict in their home country rather than on refugees. Our paper thus contributes to a new stream of literature. In this

study, we focus on truth telling as an essential social norm that helps to build trust, lower transaction costs, and enhances the wellbeing of society's members. That almost all societies worldwide condemn lying (e.g., Andrighetto et al. 2016) is supported by empirical evidence (e.g., Abeler et al. 2019). Our contribution to this discussion comprises a number of observations from subjects who are affected by a transition to different societies, and who have experienced civil war and flight.

Our results indicate that refugees engage in a behavioral adaptation process when confronted with an environment that has (potentially) different behavioral norms and unfamiliar institutional settings. When compared with German and Jordanian participants, as well as Syrian participants still living inside Syria, our Syrian refugee participants have a slightly higher likelihood to lie. Although overall differences fail to reach conventional significance levels, closer inspection reveals German, Jordanians, and even Syrians from inside Syria to lie “partially” (only to an intermediate extent), while Syrian refugees are significantly more likely to lie to a full extent.

Specifically, the analysis of choice sequences indicates that the likelihood of lying increases with repetition for refugees, whereas other participants seldom display such a behavioral pattern. In other words, it seems that refugees “learn” to lie over the course of the experiment due to some reinforcement process. The relationship between norm deviance and adherence to a social group can be self-reinforcing: people who choose to deviate from the norm because they feel different from the social group around them may reinforce this feeling by deviating and in turn increase the likelihood of a sequential deviation from the norm in the future. As mentioned earlier, deviance can become a pattern. Reporting lies at a higher frequency is typically found among refugees who have less contact with the population of their new host country, that is, elders and females.

It is not surprising that refugees question the norms and rules of their new environment in a trial-and-error type of learning. After all, how could they know that there is little difference between norms and behavior in their homeland and the new hosting land? The crucial insight from our experiment

is that refugees test the norms and seem to adjust their behavior according to the incentives provided to them. Consequently, persistent norm deviance can become a pattern.

Therefore, policy implications of our study are two-fold. First, the hosting society could protect existing social norms by corresponding incentives and a setting in which deviance payoffs should be avoided. Second, and as a complementary measure, as the likelihood for norm deviance can dissipate with higher levels of social identification to the new social group, the feeling of adherence to the new society should be central for the integration in the host country.

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Appendix

AI. Experimental Instructions (English Translation)

In this section, we ask you to think of a number between 1 and 6 (that is, 1, 2, 3, 4, 5, and 6). If you have done this please press the button "next". The button rolls an electronic die such that you see the outcome of the electronic die at the bottom of the page.

Please type in the number you thought of before pressing the button in the corresponding box on the next page.

If the outcome of the electronic die corresponds with the number you thought of, you receive 50 points,

If the outcome of the electronic die does not correspond with the number you thought of, you receive 0 points.

Please notice: You play six rounds of this game. This means that you memorize six times a number before you press the "next" button and type the number you thought of in the corresponding box.

Now, please think of a number between 1 and 6 and click "next".

Your throw of the die got the number:

Please type in the number you thought of (please write your answer here):

Note that your answer must be between 1 and 6. Only an integer value may be entered in this field.

AII. Questionnaire for PTSD Symptoms

The following are symptoms that people sometimes have after experiencing hurtful or terrifying events in their lives. Please read each one carefully and decide how much the symptoms bothered you in the past week.

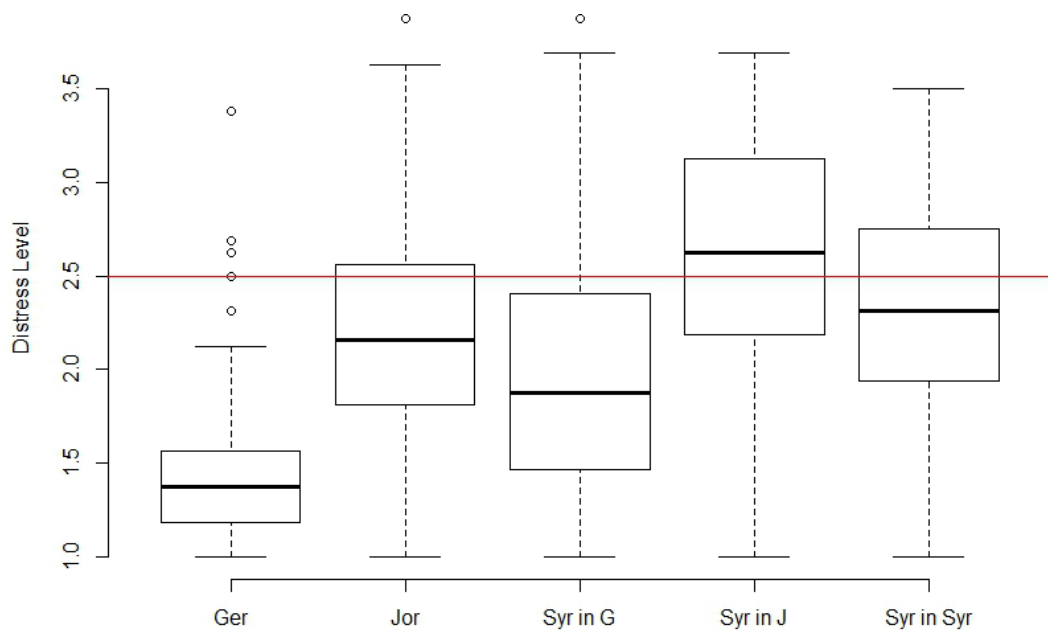
Please choose the appropriate response for each item:

	Not at all	A little	Quite a bit	Extremely
Recurrent thoughts or memories of the most hurtful or terrifying events.				
Feeling as though the event is happening again.				
Recurrent nightmares.				
Feeling detached or withdrawn from people.				
Unable to feel emotions.				
Feeling jumpy, easily startled.				
Difficulty concentrating.				
Trouble sleeping.				
Feeling on guard.				
Feeling irritable or having outbursts of anger.				
Avoiding activities that remind you of the hurtful event.				
Inability to remember parts of the most hurtful events.				
Less interest in daily activities.				
Feeling as if you don't have a future.				
Avoiding thoughts or feelings associated with the hurtful events.				
Sudden emotional or physical reaction when reminded of the most hurtful events.				

AIII. Distress Level

Figure A1 box plots the distribution of distress levels across our participant groups.³¹ The distribution for German participants is highly concentrated at a low median, while Jordanians and Syrian refugees (particularly those in Jordan) are severely distressed. The high proportion of Jordanians suffering from psychological distress appears in need of explanation, which is even higher than that of Syrian refugees in Germany. One possibility is that they suffer from long-term effects considering the fact that around one half of all Jordanians used to be refugees at some point in time. Another possibility could be they feel “victimization by proxy” (sometimes this phenomenon is called "compassion fatigue" in psychological literature, e.g., Figley, 2002) because of their proximity to the civil war in Syria and frequent interactions with Syrians.

Figure AI: Distress levels by Subgroups



Red line indicates the distress level of 2.5 which stands for severe psychological distress.

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We obtain the following p-values for all pairwise comparisons using subjects as independent observations; exact Wilcoxon-Mann-Whitney Test, two-sided: for Jordanians and Syrians in Syria the test yields a p-value of 0.3478; for all remaining pairwise comparisons the test yields a p-value of $p < 0.01$.

AIV. Additional Statistical Analyses

Table AI: Differences on Sociodemographic Variables

Statistics	Religion	Education	Male	Age	Income	Distress Level	Distress Level < 2.5	Married	Children
Ger vs. Syr in Ger	< 0.01	< 0.01	< 0.01	< 0.01	-	< 0.01	< 0.01	0.2745	0.01634
Jor vs. Syr in Jor	0.14	< 0.01	0.02688	< 0.01	-	< 0.01	< 0.01	< 0.01	< 0.01
Syr in Ger vs. Syr in Jor	< 0.01	< 0.01	< 0.01	0.3168	0.04537	< 0.01	< 0.01	< 0.01	< 0.01
Syr in Ger vs. Syr	< 0.01	0.04457	< 0.01	< 0.01	0.892	< 0.01	< 0.01	0.5039	0.1031
Syr in Jor vs. Syr	0.5652	< 0.01	< 0.01	< 0.01	0.01838	< 0.01	< 0.01	< 0.01	< 0.01
Ger vs. Jor	< 0.01	0.02072	0.116	< 0.01	0.04346	< 0.01	< 0.01	0.0263	0.04066

P-Values comparing values using exact Wilcoxon tests (two sided)

Table AII: Statistical Significance of the Differences Between the Proportions of Participants that Report 3, 4, 5 or 6 Matches

	Syrians in Ger (0.30)	Syrians in Jor (0.30)
Syrians in Syr (0.19)	0.11	0.07*
Germans (0.24)	0.46	0.38
Jordanians (0.27)	0.73	0.64

Test results comparing the frequency per sample of participants reporting 3, 4, 5 or 6 matches. Two-sided proportionality test. The frequencies of reported matches are shown in parenthesis.