

When do refugees regret their decision to flee? The role of perceived forcedness, perils during migration and counterfactual thinking

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ABSTRACT

Experiences of migration can elicit various emotions, including feelings of regret about leaving their country of origin. Building on theorizing about distinct features of refugeehood, we examined whether and how migration perils (hardship encountered before and during migration) and perceived forcedness influence regret among Arabic-speaking refugees ($N = 388$). To illuminate underlying psychological processes, we assessed counterfactual thinking (CFT). We found that regret was negatively associated with forcedness and with perils (before and during migration) but positively with post-arrival stressors. Downward CFT (things could have been *worse* if not having left one's country) was positively associated with migration perils and perceived forcedness but negatively with regret. Upward CFT (things could have been *better*), which increased with higher post-arrival stressors, was positively associated with regret. A moderated mediation analysis indicated that perceived forcedness attenuated the effect of perils on downward CFT and the indirect effect of perils via downward CFT on regret. This finding may indicate that, after arrival in the receiving society and under lower perceived forcedness, regret is reduced to the extent that past experiences of perils are justified through downward CFT; under high forcedness, however, these processes are triggered to a lesser extent. Our study offers insights into the cognitive-emotional processes underlying refugees' responses to migration, while highlighting the role of ongoing stressors in post-migration adjustment.

Introduction

Current developments in forced migration

In 2024, the total number of people forcibly displaced worldwide reached a record 123.2 million, representing an increase of 7 million people (6%) compared with the end of 2023 (UNHCR, 2024). Displacement triggers complex psychological processes that shape the lives of both those who are displaced and the societies that receive them (Echterhoff et al., 2020; Knausenberger et al., 2022; Renner et al., 2020). Psychological research shows that displacement can negatively affect well-being across multiple domains, including emotional distress, social withdrawal, and poorer mental health outcomes (Nickerson et al., 2025; Renner et al., 2020; Silove et al., 2017). However, the psychological mechanisms through which refugees respond to adversities and past decisions remain only partially understood. Advancing knowledge of these dynamics is crucial for developing evidence-based interventions that support the well-being of displaced populations (Echterhoff et al.,

2020; Renner et al., 2020).

Psychological responses to migration

To explain how the experiences of forced migration shape psychological responses to migration, Echterhoff et al. (2020) proposed the Psychological Antecedents of Refugee Integration (PARI) model. A key tenet of PARI is that perceived forcedness of migration and migration-related distress and hardships (hereafter, perils) influence refugees' responses to migration-related demands, which, in turn, are critical predictors of refugees' need fulfilment, well-being, and, ultimately, integration in the receiving society. Important psychological responses are negative emotions such as anxiety, despair, or regret. Intense regret has also been linked to self-attacking cognitions, which can exacerbate insomnia, stress, and depression, further impairing adaptive functioning (Allaert et al., 2019).

Our research focused on the post-migration emotion of regret and underlying processes. Regret is commonly defined as the realization that

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a better outcome could have resulted from a different decision (Gilovich & Medvec, 1995). In other words, regret is elicited by thinking back to past actions and decisions that have, presumably, led to negative, adverse or distressing outcomes for oneself or others (Sijtsema et al., 2022). As a self-regulatory mechanism, regret can promote reflection and learning but, if unregulated, may lead to rumination, diminished life satisfaction, and depression—common issues among refugees (Nickerson et al., 2025). A key cognitive–motivational process involved in regret is counterfactual thinking, the mental simulation of alternative outcomes to past events (e.g., Roese, 1999). We examined the role of this process in refugees' regret responses to adversities surrounding migration, and whether perceived forcedness of migration would moderate the association between perceived adversities and regret. This analytical approach to refugees' emotional responses to migration represents the distinctive contribution of the present research.

Our rationale resonates with research showing that refugees are active interpreters of their migration experiences, engaging in aspirational self-making by relating migration to personal potential and imagined futures (Collins & Carling, 2019). This reflects a view of agency as temporally embedded, shaped by reflection on the past, anticipation of the future, and action in the present (Emirbayer & Mische, 1998). Refugees' meaning-making often involves critical reflection on the social and political structures that constrain them (Diemer et al., 2016) and imaginative engagement with possible futures in new environments (Koikkalainen & Kyle, 2016). However, these frameworks have not yet considered refugees' counterfactual reasoning, which is influenced by, and also influences people's perceived agency (Kulakova et al., 2017), that is, how they evaluate alternative paths, appraise migration-related perils, and assign meaning to the degree of choice they perceived. Investigating these processes is therefore essential to understanding how refugees' subjective interpretations influence post-migration emotions (e.g., regret) and, eventually, feel included in the society.

Perceived forcedness and perils of migration

The PARI model postulates that a crucial factor of responses to migration-related demands is the degree of perceived forcedness of migration. Being forced to flee is a defining characteristic that fundamentally distinguishes refugees from other migrants in international law (International Organization for Migration, 2021). But despite the categorical legal definitions, there is a growing argument among researchers to view forced and voluntary migration on a continuum rather than as entirely separate categories (Echterhoff et al., 2020; Erdal & Oeppen, 2018). This approach suggests that migration experiences often involve a combination of continually varying factors that may include elements of both forcedness and choice. Strict categorization fails to capture the nuanced and multifaceted nature of these experiences and perceptions.

Perceived forcedness of leaving one's home country is rooted in pre-migration perils, that is, potential harm and risks experienced prior to migration (perils in the home country), such as safety threats like war and crime, or limitations on autonomy (e.g., no freedom of speech). The sudden and often compulsory nature of refugee migration heightens the chances of encountering or risking various dangers during the journey (migration perils), such as unsafe routes and crime or separation from loved ones and reliance on traffickers. It further limits the ability to plan migration properly and increases the likelihood of accepting perils and high-risk situations along the way (Niemann & Hertel, 2024). According to the PARI model (Echterhoff et al., 2020), perils encountered before and during migration potentially shape refugees' responses to their migration.

Regret and Counterfactual Thinking

Refugees may experience regret for the choices they have made during their displacement (Knausenberger et al., 2022). A major

cognitive mechanism underlying regret is Counterfactual Thinking (CFT), which involves mentally simulating and comparing alternative outcomes to understand how reality might have unfolded differently (Zeelenberg et al., 1998; Rye et al., 2008). CFT is especially potent in situations that are personally meaningful, allowing individuals to revisit past events and alter their own actions to assess how different choices could have changed the outcome (Rye et al., 2008). These mental simulations are crucial for understanding causal relationships between actions and results (Connolly & Zeelenberg, 2002; Zeelenberg et al., 1998). CFT can take on different forms. Upward counterfactual thoughts focus on how things could have been better, while downward counterfactuals emphasize how things could have been worse (Rye et al., 2008). Moreover, CFT can focus on changing external circumstances (situation-focused) or personal behaviors (person-focused). The direction and focus of CFT significantly impact how responsibility for life events is attributed, shaping emotional responses such as regret (Roese, 1999).

Regret is especially rooted in upward, person-focused CFT, emerging when individuals realize that their current situation could have been improved through different choices (Connolly & Zeelenberg, 2002). This form of CFT is particularly distressing because it implicates personal fault, suggesting that had one acted differently, the situation would be better (Connolly & Zeelenberg, 2002). As a parallel mechanism, individuals can reduce regret by engaging in downward CFT, convincing themselves that alternative choices might have led to worse outcomes. By highlighting what they have overcome or avoided, individuals may justify their decisions and minimize regret. The Decision Justification Theory (Zeelenberg et al., 1998) formalizes this process, suggesting that regret stems from both the comparative assessment of outcomes and self-blame for perceived wrong choices.

Previous findings on the role of forcedness and perils in refugees' regret

Some of the factors that we highlighted were addressed by Knausenberger et al. (2022), who suggested that both perceived forcedness and migration perils reduce feelings of regret. Moreover, an interaction effect emerged: when perceived forcedness was low, higher perceived perils were associated with greater regret. This finding could indicate that when refugees perceive that the perils of migration could have been avoided, they may be more likely to engage in upward CFT, contemplating how their situation might have been better had they made different choices. This speculation aligns with findings suggesting that upward CFT is more frequent following distressing, or even traumatic, events (Hoppen et al., 2020; Rye et al., 2008; Zeelenberg et al., 1998), such as those experienced during migration.

The present study

Our study sought to deepen our understanding of CFT as a psychological mechanism shaping refugees' experiences of regret about leaving their country of residence. Building on the studies by Knausenberger et al. (2022), we investigated how perceived forcedness and migration perils interact to influence the consideration of alternative, counterfactual scenarios, thereby affecting levels of regret. Thus, we addressed, for the first time, underlying psychological mechanisms by assessing CFT, focusing on person-focused upward and downward CFT. Also, we employed more recent and validated scales of perceived forcedness and perils (Niemann & Hertel, 2024). This approach promised new insights into how refugees cope with the outcomes of their migration experiences. Additionally, several exploratory variables were examined to further enhance our understanding of the underlying psychology and to identify potential correlates for future hypothesis-driven studies.

We pre-registered hypotheses, materials, procedures, and analyses plan on Open Science Framework (OSF): [<https://osf.io/e2ftr>]. We followed the protocol unless otherwise stated in a note or in the text.

Hypotheses

The hypotheses on the role of migration forcedness, perils, and CFT were derived from the reasoning and extant research reviewed above.

Hypothesis 1 (H1): Higher levels of perils among refugees are positively associated with feelings of regret. This effect may depend on the interaction between perils and forcedness, such that when forcedness is high, perils predict less regret, whereas when forcedness is low, perils predict more regret (interaction not preregistered).

Hypothesis 2 (H2): The higher the levels of perils faced by refugees, the more likely they are to engage in counterfactual thinking. Specifically, migration perils should be positively associated with *upward* CFT (i.e., the more perils refugees have experienced, the more likely they are to consider how things could have been better had they not left). Conversely, migration perils may be negatively associated, or not associated, with *downward* CFT (i.e., thinking how things could have been worse if one had not left one's country).¹

Hypothesis 3a (H3a): Increased engagement in upward counterfactual thinking is positively associated with higher levels of regret among refugees. Supported by previous findings, we investigated whether engaging in upward CFT leads to higher levels of regret.

Hypothesis 3b (H3b): Increased engagement in downward counterfactual thinking is positively associated with lower levels of regret among refugees. Additionally, we aimed to gain insights into whether engaging in downward CFT leads to lower feelings of regret.

Hypothesis 4a (H4a): Perceived forcedness moderates the effect of migration perils on CFT. Under lower perceived forcedness, the negative association between perils and downward CFT and the positive association between perils and upward CFT (first-stage moderation) are stronger.

Hypothesis 4b (H4b): Perceived forcedness moderates the effect of counterfactual thinking on regret. Under lower perceived forcedness, the positive association between upward CFT and regret, and the negative association between downward CFT and regret are stronger (second-stage moderation).

Exploratory analysis

To further examine psychological responses to flight and migration, we also administered exploratory measures that could play a role in refugees' thinking about, and emotional responses to, migration. These measures were included to identify correlations that could inspire future studies. Because counterfactual comparison processes are more likely to take place when the decision maker's expectations are violated to a larger extent (Huang & Zeelenberg, 2012), we asked participants whether their expectation of the migration journey as well as life in Germany were met (vs. disappointed). We explored correlations with CFT and regret.

Attributions of responsibility might also influence CFT. Understanding how individuals attribute responsibility to their current circumstances, especially in situations involving forced migration, can shed light on the psychological aspects of their choices. External attribution might reduce person-focused CFT because the responsibility for the choice is attributed to somebody else or to the situation (Zeelenberg et al., 1998). Hence, we explored the respective correlations.

Post-arrival stressors may affect refugees' reflection on how

¹ In the original preregistration, Hypothesis 2 treated CFT as a general construct influenced by perils, without distinguishing upward and downward forms or specifying the direction of the effect. Similarly, Hypotheses 4a and 4b were preregistered as general moderation effects of perceived forcedness on the relationships among perils, CFT, and regret. These hypotheses are here refined to include directional expectations for the two forms of CFT, which are grounded in the literature. These changes were also made to make our hypotheses more precise and clear with regard to the analyses and results.

emigration has impacted their current life, potentially intensifying feelings of uncertainty and affecting their retrospective judgments (Malm et al., 2020). Integration challenges and post-arrival stressors, such as language barriers and discrimination, could trigger thoughts about how such adversities could have been avoided, increasing the likelihood of engaging in CFT and experiencing regret.

Finally, studies suggest that free will beliefs influence the experience of meaning-making by emphasizing the causal role of actors (including oneself) in the outcome of events and actions (Seto et al., 2015). We explored whether belief in free will is positively associated with self-related upward counterfactuals (Alquist et al., 2015).

Method

Participants

An *a priori* sample size calculation using G*Power was conducted for a multiple regression model with four predictors (perils, forcedness, CFT, and their interaction), aiming for with power = 0.80, and $\alpha = 0.05$, and an effect size of $\beta = 0.19$ (Cohen's $f = 0.036$), which was the smallest interaction effect found by Knausenberger et al. (2022). The suggested number of 337 participants was increased by 15 % to 388 or more participants to account for potential sample shrinkage. Participants were recruited online through social media (Facebook groups, ads) in English, Arabic, and German. Ads on study on "Migration Experiences" targeted individuals aged 18-65+, residing in Germany but flagged as "living abroad" or "away from their hometown", with profiles set up in Arabic or showing interest in the Arabic language. Participants were offered a €7 voucher for completing the study (for photos and advertisement text, see Appendix A). Eligible participants were refugees and non-refugees who had migrated to Germany, were at least 18 years old, and spoke German, English, or Arabic.

From the total, we excluded 9 individuals who did not meet these criteria or did not consent to data collection, resulting in 388 participants. They were predominantly male (83.76%), with a mean age of 34.75 years (SD = 9.99). The majority were Syrian (74.74%) and Sunni Muslim (69.84%). Education levels varied, with 58.76% holding university degrees. Asylum statuses included asylum seekers (20.10%), refugees (35.31%), and subsidiary protection beneficiaries (21.39%).² Most lived in apartments (64.56%) and 65.46% had migrated without family. The average residency in Germany was 5.78 years (SD = 5.15), with peaks indicating recent arrivals and those who had been in Germany for 8-9 years, likely linked to the 2015 refugee influx (UNHCR, 2015), see Fig. 1.

Materials and procedure

Introduction and Sociodemographic information

The survey was conducted online via the Soscisurvey platform (<https://www.soscisurvey.com/>). The median (IQR) completion time was 10.92 (8.51–14.21) minutes. Materials were translated into German and standard Arabic by native speakers, including an academically educated, Arabic-speaking refugee consultant. Participants were informed that the study's goal was to understand the stress refugees face before, during, and after migration. Further information was provided on the procedure and the importance of answering honestly and truthfully. All participants were informed about support options if they experienced discomfort (Appendix B) and assured of the survey's

² While we acknowledge that participants held a mix of legal statuses (refugees, asylum seekers, and subsidiary protection beneficiaries), we use the term "refugees" throughout the manuscript to refer to all individuals who fled war or persecution. Our usage reflects the broader, commonly applied meaning of "refugee" as someone forced to leave their country due to war, violence, or a serious threat, rather than strictly the legal definition.

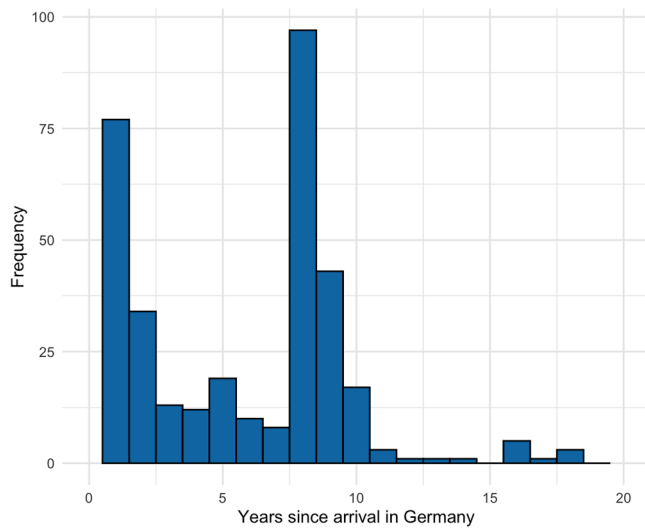


Fig. 1. The histogram displays the raw number of participants (frequency) on the y-axis for each value on the x-axis, which represents years lived in Germany since arrival. $N = 388$.

voluntary, anonymous nature, with clear explanations of data collection and processing. Consent was obtained from participants, confirming they were over 18 and had immigrated to Germany.

Sociodemographic data collected included age, gender, religion, nationality, origin, education, asylum status, accommodation type, length of stay in Germany, family presence, and current federal state. Confidentiality and anonymity were emphasized due to the sensitivity of the target group. When no published scales were available, ad hoc scales were developed jointly by all authors. All scales and items are available in English, Arabic, and German through the OSF project [<https://osf.io/qdmju/>] and Appendix C. The study received ethical approval from the Ethics Committee of the University of Münster (Approval #2023–54-GE-FA). Next, we describe the measures in the sequence in which they were administered.

Expectations before leaving the home country

Participants were instructed that the following questions were related to their expectations regarding their migration journey and conditions in Germany residency. First, they were encouraged to reflect on their migration experience before responding to questions regarding the fulfillment of these expectations. Participants responded on seven-point Likert scales, ranging from 1 = *strongly disagree* to 7 = *strongly agree* (“The flight went as planned.”, “After I left my home country, my journey went as I had expected.”, Cronbach’s $\alpha = 0.87$).

Perceived forcedness and perils

Perceived migration forcedness was measured with six items on a 7-point Likert scale ranging from 1 = *totally disagree* to 7 = *totally agree* (e.g., “I was forced to leave my home country.”, “I could plan my migration according to my own ideas.” [reverse-coded], Cronbach’s $\alpha = 0.81$). To further gather an initial assessment of experienced perils, we used two items from Knausenberger et al. (2022) on the same scale (e.g., “I felt threatened during my flight.”, “During my flight, I had traumatic experiences.”, Cronbach’s $\alpha = 0.87$).

Subsequently, participants indicated how often they had experienced and/or feared specific perilous conditions. These items were presented in two parts: (a) perils related to the home country context (e.g., “Massive dangers to my life... Examples: war, crime, disregard for human dignity by state institutions, food shortage, poverty, lack of medical care”; Cronbach’s $\alpha = 0.92$; Niemann & Hertel, 2024), and (b) perils related to the migration journey itself (e.g., “Dangerous transport routes”, “Dependence on traffickers”, “Lack of freedom of movement”;

Cronbach’s $\alpha = 0.93$). All items were rated on a 7-point Likert scale ranging from 1 = *never* to 7 = *always*. Only the peril items referring to the migration journey (b) were used in the main analyses, as they best reflected the acute, event-related stressors relevant to our hypotheses.

Counterfactual thinking

To measure CFT, we adapted items from the CFT for negative events scale (Rye et al., 2008). We removed items because they were not easily applicable to the present refugee context (e.g.: “If only another person (or other people) had not been so selfish, this whole mess could have been avoided.”). In the end, we measured upward self-referent CFT with two items (“I think about how much better things would have been if I had not left my country.”, “I cannot stop thinking about how much better I wish things would have turned out if I had not left my country.”, Cronbach’s $\alpha = 0.74$) as well as downward self-referent CFT with two items (“I think about how much worse things would have been if I had not left my country.”, “I cannot stop thinking about how much worse I wish things would have turned out if I had not left my country.”, Cronbach’s $\alpha = 0.84$) on a 7-point Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*.

Regret

Regret was evaluated using a seven-point Likert scale, incorporating two items from Knausenberger et al. (2022) and one item adapted from the Regret Elements Scale by Buchanan et al. (2016). The items included were: “I regret leaving my country.”, “Generally, I think it was the right decision to flee from my country. (reverse coded)” and “I feel sorry that I have left my home country.” (Cronbach’s $\alpha = 0.78$).

Exploratory measures

Then, we assessed external and internal attributional tendencies for negative events with ad hoc single items (“I have to blame the external circumstances for negative experiences of my emigration.”, “I have to blame myself for negative experiences of my emigration.”). Post-arrival expectations were measured with two items introduced by the prompt: “The following questions relate to your arrival in Germany. Please take a moment to remember how you felt about your arrival.” The two items were “I have been disappointed by life in Germany” and “When I arrived in Germany, conditions in Germany were worse than expected” (Cronbach’s $\alpha = 0.77$).

Additionally, we assessed post-arrival stressors using the Refugee Post-Migration Stress Scale (e.g., “Feeling disrespected due to my national background”, Cronbach’s $\alpha = 0.85$) developed by Malm et al. (2020). After internal discussion, we kept 11 items from the original scale, removing those that were considered too speculative for our context (e.g., “Worry about family members that I am separated from”). Eventually, we explored their beliefs in free will using 8 items adapted from Nadelhoffer et al. (2014)’s Free Will Inventory, which included statements like “People always have the ability to do otherwise.” (Cronbach’s $\alpha = 0.73$). Collaborating with an academically educated, native Arabic refugee consultant, we removed items perceived as culturally specific to the Western context, such as “Given the way things were at the Big Bang, there is only one way for everything to happen in the universe after that.”. Moreover, taking into account the religious beliefs prevalent within our participants, we substituted terms in items containing Western-centric notions, aligning them with the expectations of our religiously oriented participants. For instance, we replaced “the laws of nature” with “divine destiny”.

End of the survey

Finally, participants needed to agree to the use of their data for scientific use. They were asked to provide open comments if they had any, debriefed, and given the possibility of entering their email address to receive the payment.

Statistical analysis

The analyses were carried out using R 4.4.2 (R Core Team, 2024) and the lavaan package (Rosseel, 2012). The significance level was $\alpha = 0.05$ for all calculations. Continuous variables were standardized before the analysis. The frequencies for three main variables (downward CFT, upward CFT, regret) were considerably skewed (see frequency distributions, Appendix D), traditional linear regression methods would have been compromised by violations of assumptions such as normality and homoscedasticity (Berkovits et al., 2000; Erceg-Hurn & Mirosevich, 2008; Kim & Li, 2023). To address this issue, we deviated from the pre-registered analysis plan and used robust standard error estimators. Specifically, we fitted regression models that are more resilient to assumption violations, thus increasing the reliability of our results. Data and analysis scripts are available on OSF (<https://osf.io/qdmju/>).

Results

Descriptive statistics

First, we calculated the means and standard deviations of the main variables as well as the standardized correlations (see Table 1). Overall, participants reported moderate to high levels of perceived forcedness and migration perils, with downward counterfactual thinking occurring more frequently than upward counterfactual thinking. For the full correlation plot, including exploratory analyses, see Appendix E.

Test of our hypotheses

We first tested whether perceived perils predicted regret and whether perceived forcedness would moderate the perils-regret association in a multiple regression. The remaining hypothesized associations were investigated by fitting moderated mediation models, which allowed us to test some main and exploratory questions. Perils during migration served as the predictor variable, while CFT (downward or upward) acted as the mediator, and regret as the outcome variable. We also explored moderated mediation, for which we examined the significance of the indirect effect of perils on regret through CFT at varying levels of the proposed moderator, that is, forcedness. The following results include the control variables age, gender, nationality, origin of emigration, post-arrival stressors, expectations regarding migration and life in Germany, as well as the years spent in Germany. The significance of the results remains unchanged when not controlling for these variables (see Appendix F, Figure F1), indicating that the effects are robust.

Effect of perils on regret with the moderation of forcedness

A multiple regression model found that perils of migration significantly predicted lower regret ($b = -0.17, SE = 0.05, z = -3.20, p = .001, \beta = -0.17$). Forcedness also significantly predicted lower regret ($b = -0.21, SE = 0.05, z = -3.91, p < .001$). The interaction between perils and forcedness was not significant ($b = 0.02, SE = 0.04, z = 0.48, p = .633$).

Table 1

Means, standard deviations, and correlations of the main variables.

Variable	M	SD	1	2	3	4	5	6
1. PE_HOME	5.29	1.34						
2. PE_MIG	5.03	1.41	.72***					
3. REG	2.06	1.45	-0.32***	-0.26***				
4. CFT_UP	2.72	1.86	-0.31*	-0.04	.54***			
5. CFT_DOWN	5.67	1.74	.41***	.35**	-0.40**	-0.22**		
6. FORCE	5.01	1.57	.51***	.48**	-0.30**	-0.17**	.31**	
7. POSTSTR	4.47	1.27	.20**	.21**	.25***	.26***	-0.09	.13***

Table 1. Variable abbreviations are used to improve clarity. PE_HOME = Perils in the home country, PE_MIG = Perils during migration, REG = Regret, CFT_UP = Counterfactual Thinking Upward, CFT_DOWN = Counterfactual Thinking Downward, 6. FORCE = Forcedness, POSTSTR = Post-arrival stressors. * indicates $p < .05$. ** indicates $p < .01$. *** indicates $p < .001$.

Effects of perils on Counterfactual Thinking and regret

We fitted a series of moderated mediation models. See Fig. 2 for a graphical representation and statistical results of the model testing our variables of interest with downward CFT as a mediator (the results of upward CFT as a mediator were reported in the text). As in the previous analysis, we found that higher levels of perils during migration were linked to decreased regret (inconsistent with H1). This suggests that individuals who faced more perils during migration tend to experience less regret. Our assumptions regarding perils were not supported (H2) and ran counter to the originally expected direction. Migration perils were associated with higher levels of downward CFT (e.g., “Things would be worse if I had not left my country”, see Fig. 2), contrary to the predicted negative association. In addition, the predicted positive association between migration perils and upward CFT (e.g., “Things would be better if I had not left my country”) was not significant ($b = 0.048, SE = 0.048, z = 0.997, p = .319$). Then, Hypotheses 3a and 3b were both confirmed, since increased engagement in upward CFT was positively associated with higher levels of regret among refugees ($b = 0.453, SE = 0.052, z = 8.701, p < .001$), while increased engagement in downward CFT was associated with lower levels of regret (see Fig. 2 for the statistical results).

Counterfactual Thinking as a mediator

To examine the mechanism leading to regret, we conducted a mediation analysis with downward or upward CFT as potential mediators. We found a significant indirect effect of downward CFT, meaning that when perils increased, they engaged more in downward CFT, which in turn decreased the feeling of regret (see Fig. 2). However, the indirect effect of upward CFT was not significant ($b = 0.022, SE = 0.022, z = 0.996, p = .319$), which means that it may not explain the process like downward CFT did.

Forcedness as a moderator

We investigated forcedness as a moderator of the relation between perils and downward CFT. The results showed that forcedness significantly moderated the effect of perils on downward CFT (partial support of H4a). Specifically, the effect of perils on downward CFT was stronger under low (-1SD) forcedness ($b = 0.298, SE = 0.077, z = 3.870, p < .001$) than under high (+1SD) forcedness ($b = 0.122, SE = 2.042, z = 1.884, p = .041$). Differently, forcedness did not significantly moderate the effect of perils on upward CFT ($b = 0.023, SE = 0.014, z = 1.591, p = .112$).

Furthermore, we considered forcedness as a moderator of the mediation effect of downward CFT. The moderated mediation index was significant (see Fig. 2), indicating that the indirect effect of perils on regret through downward CFT changed with perceived forcedness. Specifically, when forcedness was low (-1SD), the indirect effect of perils on regret through downward CFT was significant, suggesting that the mediation of CFT of the effect of perils on regret was stronger when individuals perceived lower forcedness ($b = -0.101, SE = 0.032, z =$

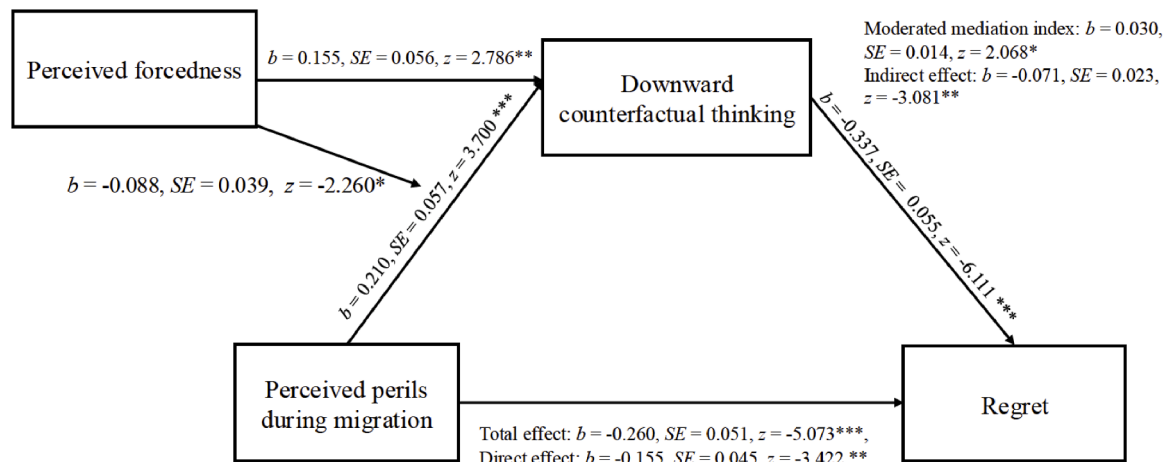


Fig. 2. Moderated mediation model when controlling for age, gender, nationality, emigration origin, post-arrival stressors, expectations, and years of residence. * indicates $p < .05$. ** indicates $p < .01$. *** indicates $p < .001$.

-3.150, $p = .002$). However, when forcedness was high (+1SD), the indirect effect became non-significant ($b = -0.041, SE = 0.021, z = -1.931, p = .053$), implying that the mediation was weaker when individuals perceived higher forcedness.

Forcedness was not significant when it was added as a second stage moderator of the effect of upward or downward CFT on regret (no support for H4b) (see Appendix F for more details).

Exploratory analysis

We conducted exploratory correlation analyses of attribution tendencies (both internal and external), expectation fulfillment regarding the flight and life in Germany, as well as post-arrival stressors, and belief in free will. For a comprehensive list of correlations, please refer to Appendix E. Only statistically significant correlations are reported ($*p < .05, ** p < .01, *** p < .001$).

Fulfilled expectations regarding the migration journey and life in Germany

Participants who reported the expectations regarding their flight (migration journey) were met to greater extent (e.g., “The flight went as planned”) experienced also significantly less forcedness ($r = -0.35^{***}$), less post arrival stressors ($r = -0.23^{***}$) and less perils ($r = -0.35^{***}$). Put differently, these findings suggest that greater experiences of migration-related adversities (perils, forcedness, stressors in the receiving country) were associated with greater disappointment of expectations about the migration journey. Furthermore, participants who reported that the expectations regarding their life in Germany (e.g., “I have been disappointed by life in Germany”) were less fulfilled reported more post-arrival stressors ($r = 0.58^{***}$), engaged significantly more in upward CFT ($r = 0.35^{***}$), reported stronger feelings of regret ($r = 0.36^{***}$) and fewer beliefs in free will (e.g., People always have the ability to do otherwise, $r = -0.18^*$). They also attributed negative circumstances externally ($r = 0.24^{***}$) as well as internally ($r = 0.26^{***}$). In sum, regret was strongly associated with disappointed expectations regarding condition in the receiving country but not with disappointed expectations regarding the migration journey.

Attribution tendencies

Refugees who blamed themselves for negative experiences of their emigration were significantly more likely to engage in upward CFT ($r = 0.34^{***}$), reported that they were disappointed by life in Germany ($r = 0.26^{***}$) and experienced more post arrival stressors, for instance, discrimination by German authorities, in school or at work ($r = 0.18^*$) as well as more feelings of regret ($r = 0.32^{***}$). Refugees who blamed external circumstances for negative experiences of their emigration

were more likely to engage in downward CFT ($r = 0.22^{***}$), were significantly disappointed by life in Germany ($r = 0.24^{***}$), experienced higher post-arrival stressors ($r = 0.27^{***}$) and perceived to have experienced more perils, in general ($r = 0.18^*$), as well as perils at home ($r = 0.17^*$). Thus, internal and external attributions were associated with different types of CFT, upward and downward respectively.

Post-Arrival stressors

When post-arrival stressors were high, participants experienced increased feelings of regret ($r = 0.25^{***}$). When fitting a path analysis model with robust standard error estimators with post-arrival stressors as the predicting variable, downward or upward CFT as mediator, and forcedness as moderator, it shows that post-arrival stressors positively predicted both respondents' upward CFT (i.e., thoughts about how things could have been better) and regret (see Fig. 3). However, post-arrival stressors did not predict downward CFT (i.e., thoughts about how things could have been worse). This pattern of findings is plausible because thoughts about post-migration issues are still ongoing and a source of current concern. The more such concern, the more refugees would engage upward CFT. This is different from thoughts about migration perils, which lie in the past (often many years). Thus, for migration perils (vs. post-arrival, current stressors), justification via downward CFT is more likely. There was no evidence that this finding was moderated by participants' reported forcedness of migration (see Appendix F).

Discussion

Our study illuminates refugees' retrospective emotions regarding emigration and underlying processes (i.e., CFT), which have been scarcely examined (Knausenberger et al., 2022). We found that individuals who reported more perils during migration and higher migration forcedness tend to experience less regret. This was inconsistent with H1. Also, forcedness did not moderate this association. Yet, both perils during migration and perceived forcedness further increased downward CFT but not upward CFT (H2). Increased engagement in upward CFT was positively linked to higher levels of regret among refugees (H3a), whereas increased engagement in downward CFT was associated with lower levels of regret (H3b).

The results further demonstrated that forcedness moderated the effect of perils on downward CFT (H4a). When perceived forcedness decreased, the positive effect of perils on downward CFT increased in size. In other words, when refugees perceived they were *not* forced to leave their country, those who experienced perils during their journey thought more about how their current situation could have been worse if

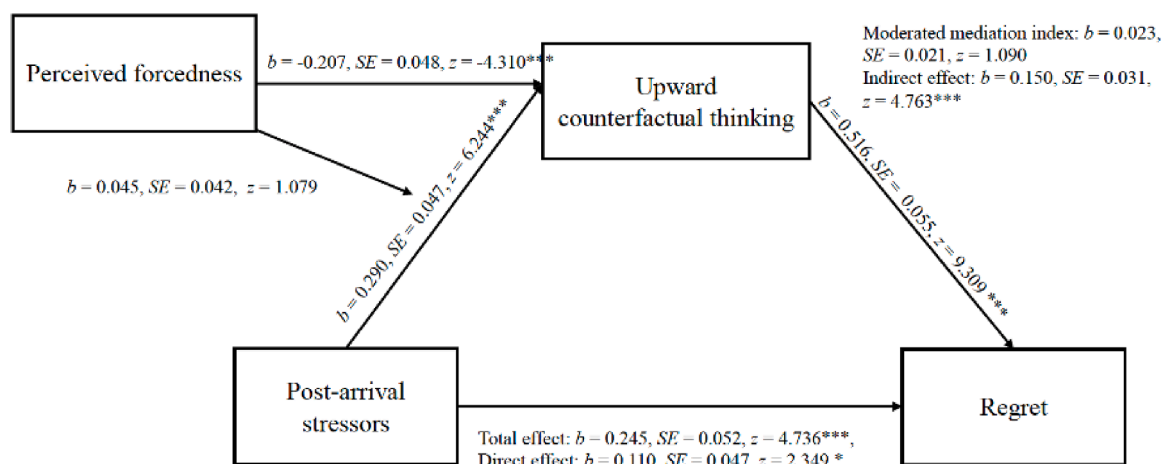


Fig. 3. Moderated mediation model with post-arrival stressors as the predictor and upward CFT as the mediator. * indicates $p < .05$. ** indicates $p < .01$. *** indicates $p < .001$.

they had not left their country. This, in turn, reduced regret. This effect was significantly reduced when forcedness was high. Specifically, we found a first-stage moderation but not a second-stage moderation, as forcedness did not moderate the effect of any type of counterfactual thinking on regret (H4b1, H4b2). Interestingly, exploratory analyses showed that high post-arrival stressors increased regret and promoted upward CFT but did not increase downward CFT.

Based on established cognitive mechanisms, we expected that experiences of greater perils during migration would have prompted refugees to engage mostly in upward CFT, imagining how life could have been better had they made different choices, and consequently feeling regret about fleeing their home country (Hoppen et al., 2020; Huang & Zeelenberg, 2012; Zeelenberg et al., 1998). However, we found that participants who faced high levels of perils during their journey engaged more in downward CFT and experienced less regret. In comparison, upward CFT was not a relevant explanatory variable. In other words, when individuals were confronted with difficulties of their migration journey (migration perils) they were more likely to focus on imagining how things could have been worse (downward CFT) rather than better, and this reduced the negative experience of regret.

In addition, previous work suggested that high perceived forcedness could buffer the negative impact of perils on regret, but its relation to CFT remained speculative (Knausenberger et al., 2022). In our study, perceived forcedness was generally associated with lower regret, greater engagement in adaptive cognitive strategies, such as downward CFT, and less use of upward CFT. Thus, although forcedness may reduce perceived agency and freedom at the time of migration, it appears to support resilient outcomes in the present by shaping how experiences are cognitively evaluated. Moreover, forcedness moderated the effect of past distressing experiences (perils) on downward CFT: when forcedness was low, perils more strongly increased downward CFT, whereas when forcedness was high, the influence of perils was attenuated. Consequently, the indirect effect of migration perils on regret through downward CFT was reduced under high forcedness, indicating that the engagement of downward CFT—and its protective influence on regret—became less dependent on past perils.

These findings contribute to addressing an important ambiguity in the PARI model (Echterhoff et al., 2020) and extend our understanding of refugees' resilient experiences. While forcedness and migration perils can be seen as cognitive and emotional burdens that undermine refugees' integration, they can also act as motivational resources. Remarkably, nearly all participants reported low regret, rejecting upward CFT and endorsing downward CFT. This indicates that, despite encountering severe perils, refugees tend to interpret their migration experiences in resilient and adaptive ways. Thus, these findings add evidence helping

to refine theoretical models, as the PARI, by suggesting that going through migration perils, especially when forcedness is moderate, can function as catalysts for protective cognitive processes that support meaning-making and psychological well-being.

The inconsistency with some prior research prompts an interesting question: why does experiencing perils mainly prompt downward CFT? We propose a few explanations.

Cognitive dissonance may help explain such a result. When individuals perceive they have higher agency in high-stakes decisions, such as leaving their home country, but later face severe dangers, psychological discomfort may arise, leading to self-doubt and questioning of one's choice (Harmon-Jones & Mills, 2019). According to Festinger (1962), such discomfort reflects cognitive dissonance—a conflict between contrasting beliefs or thoughts—that motivates efforts to reduce such a tension. One way of reducing it could be to imagine how their situation could have been even worse had they not fled. Beyond reducing post-decisional dissonance, downward CFT can foster relief by rationalizing past choices, and protect self-concept (Affleck et al., 1987; White & Lehman, 2005). By construing their decision to leave as necessary and ultimately beneficial, refugees may reinforce their sense of survival and resilience, minimizing regret towards their life changes.

A cognitive dissonance framework can also account for another, more negative, finding of this study—namely, that post-arrival stressors increased regret, while migration perils did not, through upward CFT, though in a distinct way. Whereas migration perils are past and uncontrollable, post-arrival challenges—such as difficulties in employment, discrimination, cultural adaptation, or navigating legal systems—are ongoing and unresolved. Their persistence may elicit dissonance as refugees confront a gap between current realities and expectations of a better life after migration. Indeed, we observed positive associations between post-arrival stressors, upward CFT, and disappointment about life in Germany. Because such stressors remain active, dissonance may not yet be resolved, and the resulting emotional tension can sustain upward counterfactuals, with refugees imagining how life might have been better had they not fled. These findings suggest that perceptions of post-migration conditions act in opposition to migration perils by perpetuating regret and self-questioning. In this sense, structural violence and ongoing discrimination (Atallah, 2021) not only constrain integration but also maintain unresolved cognitive and emotional conflicts that hinder refugees' sense of closure and adaptation.

Engagement in one or another CFT may also depend on the type of distressing experience and the level of analysis. Although upward CFT is generally dominant after distressing events (Hoppen et al., 2020), Blix et al. (2016) found downward CFT to be more common following collective trauma, such as the 2011 Oslo bombing. Similarly, in our study,

experiences of migration perils, which was both individual and collective, elicited more downward CFT. Among our predominantly Syrian participants (74.74 %), such reflections may represent both an individual coping response aimed at reducing cognitive dissonance and a collective, meaning-making process rooted in shared experiences of narrowly escaping harm.

Beyond this individual–collective interface, critical consciousness offers a broader sociopolitical lens through which to interpret these patterns. It describes how marginalized groups recognize dehumanizing social conditions and their capacity to resist them (Diemer et al., 2016). From this perspective, refugees' migration-related suffering may be reframed as stemming less from personal inadequacy and more from systemic inequities, as refugees' reflections are not only individual psychological states; they are shaped by collective experiences of structural violence, discrimination, and the challenge of oppressive ideologies (Atallah, 2019). Engaging in downward CFT as a consequence of reflecting on migration perils may thus serve both self-protective and meaning-making functions, allowing refugees to reinterpret migration not as a failure or loss but as an act of survival and resistance within structurally constrained contexts.

Our exploratory analyses revealed potential future directions. External attributions were associated with more downward CFT and less regret, whereas internal attributions predicted upward CFT. This pattern aligns with prior evidence that regret increases with perceived personal responsibility (Gilovich & Medvec, 1994; Zeelenberg, 1996). Unfulfilled expectations also appear to contribute to post-arrival stress, upward CFT, and regret. Research shows that unmet expectations increase mental reversals of past decisions (Huang & Zeelenberg, 2012), potentially hindering adaptation and integration. Refugees who encounter greater-than-expected social or economic barriers may thus struggle more with adjustment. Future studies should examine how interventions aligning expectations with reality—through both policy and psychosocial programs—can reduce regret and support integration.

Altogether, these findings underscore the pivotal role of receiving-society dynamics—such as opportunity structures, discrimination, public discourse, and everyday social interactions—in shaping refugees' emotions and meaning-making (Phillimore, 2011). Focusing exclusively on coping with distressing individual experiences after arrival risks neglecting the broader structural forces that perpetuate regret and hinder belonging within the host society. We therefore advocate for future research adopting a broader, ecological perspective that integrates ongoing societal conditions with individual cognitive processes. For instance, longitudinal studies could track how perceptions of migration perils and post-arrival stressors evolve over time and interact to shape refugees' psychological and emotional adjustment.

Limitations and future research

Our study faced some limitations. We found skewed distributions of key variables, as participants reported on average low levels of regret but high levels of perceived forcedness and peril. This imbalance likely reflects the extreme nature of forced migration experiences and underscores the importance of recruiting more diverse samples in future work. Including migrants with different cultural and geopolitical backgrounds, as well as varied migration motives, would enhance generalizability and reduce potential ceiling effects in perceived forcedness and perils.

The findings should also be interpreted within the specific sociopolitical and cultural context of Syrian refugees in Germany, the majority of our participants. Country-specific factors in Germany, such as legal frameworks, integration discourses, and the political climate, may shape post-arrival stressors and how emotions like regret are experienced. Moreover, recent political developments in Syria, most notably the overthrow of the Assad regime and the formation of a transitional government (The New York Times, 2024), may further influence migrants' emotional responses by altering return possibilities and future

uncertainties. Future research should build on our findings by comparing emotional dynamics across varying national or cultural settings and how evolving homeland conditions, including the presence or absence of return options, moderate migrants' feelings.

Another key contextual factor concerns the role of the family in decision-making. Akesson and Coupland (2018) demonstrated that migration among Syrian families can be a collective, negotiated process driven by cumulative losses and shared concerns for family dignity and security rather than individual choice. Such collective decision-making may diffuse personal responsibility and, in turn, buffer against feelings of individual regret or counterfactual thinking. Future research should investigate the role of family-based decision-making structures.

Finally, cultural frameworks and religious beliefs, including Islamic conceptions of fate and divine destiny, likely shape how emotions like regret are understood and expressed (Hasan et al., 2018). While we made preliminary linguistic and conceptual adaptations for religious sensitivity concerning free-will beliefs, a full exploration of these influences was beyond the present study's scope. Future work should integrate these cultural and spiritual dimensions to build a more context-sensitive model of post-migration emotional adjustment.

Conclusion

This study provides a nuanced understanding of the psychological processes underlying regret and counterfactual thinking (CFT) in refugees, with a focus on migration perils, perceived forcedness, and post-arrival stressors. We found that perceived forcedness and perils during migration reduce feelings of regret. Contrary to prior research suggesting that adverse experiences predominantly elicit upward CFT, our findings reveal that refugees who faced significant perils during migration tended to engage in downward CFT, particularly when they perceived their migration as less forced. This downward-focused cognitive strategy possibly serves as a protective, meaning-making mechanism, reducing feelings of regret by enabling individuals to appraise their situation as comparatively favorable, thus alleviating cognitive dissonance and supporting resilience. In contrast, post-arrival stressors (ongoing challenges in the host society) promoted upward CFT and heightened regret, highlighting the differential impact of past versus present adversities on emotional processing.

These findings extend theoretical frameworks such as the PARI model by highlighting how the context of forced migration, characterized by constrained choice, severe risks, and life-threatening perils, shapes the emergence of CFT. Interventions and programs should thus consider structural factors, post-arrival stressors, and contextual realities that influence cognitive-emotional processes such as CFT and regret. For researchers, the study highlights the need for future work to better understand how migration experiences and host-society conditions jointly shape psychological well-being. Overall, our results emphasize that refugees' emotional experiences are shaped by a dynamic interplay between refugees' cognition and broader social structures, informing more holistic and context-sensitive approaches to integration and mental health support.

Ethics statement

This study received ethical approval from the Ethics Committee of the University of Münster (Reference number: 2023–54-GE-FA). Participants gave informed consent before participating and were debriefed before leaving the study.

Data Availability Statement: Data, Materials, and Analyses scripts are available at <https://osf.io/qdmju/>

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.cresp.2026.100267](https://doi.org/10.1016/j.cresp.2026.100267).

Data availability

<https://osf.io/qdmju/> (Data, Materials, and Analyses scripts are available at)

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