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Abstract

The "Woman, Life, Freedom" (WLF) protests in Iran, ignited by Mahsa Amini's death in 2022, marked the longest anti-government uprising since 1979, blending gendered demands with violent unrest and state repression. This study examines how exposure to violent protests affects life satisfaction. Using two representative surveys from January-February 2022 (pre-protests) and November 2022 (peak protests), we analyze 2,256 respondents with consistent sampling methods. Using probit regressions and an instrumental variable approach with precipitation and distance from Saqqez as instruments, we measure proximity to violent events via ACLED data, treating the 'protest environment' as a composite of protests and repression. Exposure to violent protests reduces life satisfaction by 3.6 percentage points, with effects proven robust to controls. Women experience the largest declines, exceeding unemployment's impact, while international TV viewers report amplified effects, reflecting media's role in shaping perceptions. Mediation analysis highlights insecurity as a key mechanism. These findings underscore the WLF's female-led nature and authoritarian setting, advancing research on gendered unrest's societal impact. Declining life satisfaction may signal rising dissent, challenging Iran's regime stability, bridging contentious politics and public sentiment.

Keywords: Protest, Violence, Life Satisfaction, Woman Life Freedom, Iran; Political Discontent
JEL Classifications: D74; F52; H56; I31; N15

ملخص

كانت احتجاجات "المرأة والحياة والحرية" في إيران، والتي أشعلتها وفاة مهسا أميني في عام 2022، بمثابة أطول انتفاضة مناهضة للحكومة منذ عام 1979، حيث مزجت المطالب النوعية مع الاضطرابات العنيفة. تبحث هذه الدراسة في كيفية تأثير التعرض للاحتجاجات العنيفة على الرضا عن الحياة. باستخدام استبيانين تمثيليين من يناير إلى فبراير 2022 (قبل الاحتجاجات) ونوفمبر 2022 (ذروة الاحتجاجات)، قمنا بتحليل 2256 مشاركًا باستخدام طرق أخذ عينات متسقة. باستخدام الانحدارات الاحتمالية ونهج المتغير الآلي مع هطول الأمطار والمسافة من سقز كأدوات، نقوم بقياس القرب من أحداث العنف عبر بيانات مواقع النزاع، والتعامل مع "بيئة الاحتجاج" كمركب من الاحتجاجات والقمع. ويؤدي التعرض للاحتجاجات العنيفة إلى خفض مستوى الرضا عن الحياة بنسبة 3,6 نقطة مئوية، مع إثبات أن التأثيرات قوية مقارنة بالضوابط. وتشهد النساء أكبر الانخفاضات، بما يتجاوز تأثير البطالة، في حين يبلغ مشاهدو التلفزيون الدولي عن تأثيرات مضخمة، مما يعكس دور وسائل الإعلام في تشكيل التصورات. ويسلط تحليل الوساطة الضوء على انعدام الأمن باعتباره آلية رئيسية. تؤكد هذه النتائج على طبيعة الجبهة النسائية وبيئتها الاستبدادية، مما يعزز الأبحاث حول التأثير المجتمعي للاضطرابات بين الجنسين. وقد يشير انخفاض الرضا عن الحياة إلى تصاعد المعارضة، وتحدي استقرار النظام الإيراني، وربط السياسات المثيرة للجدل والمشاعر العامة.

1. Introduction

In the final months of 2022, Iran witnessed an unprecedented wave of countrywide protests under the banner "Woman, Life, Freedom" (WLF), sparked by the death of Mahsa Amini on 16 September 2022, who died while in custody of the morality police in Tehran. Originating in the western city of Saqqez, these protests rapidly spread across all 31 provinces, marking the longest-running anti-government movement since the 1979 Islamic Revolution (Ghobadi 2022). Characterized by demands for gender equality, individual freedoms, and, in some cases, regime change, the WLF protests were met with significant state repression, resulting in 481 deaths and over 18,000 detentions within the first 82 days (Human Rights Activists News Agency 2022). This violent unrest not only disrupted daily life but also challenged the legitimacy of the Iranian regime, raising critical questions about its societal and political consequences.

This study examines the impact of the WLF protests on individual life satisfaction in Iran, focusing on the role of exposure to violent protest events. We hypothesize that proximity to violent protests significantly reduces life satisfaction, reflecting the psychological and political toll of unrest in a repressive context. Life satisfaction, traditionally a measure of subjective well-being, serves here as a proxy for broader political discontent and the erosion of regime legitimacy which are both outcomes central to understanding the dynamics of contentious politics (Pearlman 2018; Ketchley and El-Rayyes 2021). Unlike prior studies that often treat life satisfaction as an end in itself, we frame it as a signal of how violent protest environments shape citizens' perceptions of stability and governance, particularly in a theocratic regime where gender dynamics amplify the stakes.

The WLF protests offer a unique case to explore these effects. As a female-led movement in a context of systemic gender repression, they highlight the intersection of gender, violence, and political stability. These dimensions are underexplored in literature on protest consequences. While previous research has established that violent events, such as wars or terrorism, diminish life satisfaction (Frey, Luechinger, and Stutzer 2009; Shemyakina and Plagnol 2013), few studies have examined how gendered protest movements in authoritarian settings affect societal well-being. Moreover, the WLF protests' scale, duration, and media amplification distinguish them from earlier Iranian unrest, providing a rare opportunity to test how direct and indirect exposure to violence influences public sentiment.

To investigate this, we leverage two original, representative surveys conducted in Iran: one in January-February 2022, before the protests, and another in November 2022, during their peak. Using a repeated cross-sectional design with consistent sampling methods, we compare life

satisfaction across 2,256 respondents, measuring exposure to violent protests via geographic proximity and event counts from the Armed Conflict Location & Event Data Project (ACLED 2023). We employ probit regressions and an instrumental variable (IV) approach, using precipitation and distance from Saqqez as instruments, to address potential endogeneity. Recognizing that the "protest environment" encompasses protests, state repression, and societal disruption, we interpret our findings as a composite effect, aligning with how citizens experience unrest (Davenport 2007). Supplementary analyses explore heterogeneity by gender and media consumption, shedding light on who bears the brunt of this turmoil.

Our results reveal that exposure to violent protests reduces the probability of life satisfaction by approximately 3.6 percentage points, with stronger effects among women and viewers of international television. These findings suggest that violent unrest not only undermines personal well-being but may also signal growing discontent with the regime, potentially fueling further mobilization. By focusing on violent protests, we isolate a key driver of these effects, distinguishing them from peaceful demonstrations, which may have neutral or positive impacts (Ni et al. 2020). The political implications are significant: declining life satisfaction could reflect anger at state repression rather than the protesters themselves, challenging the regime's coercive grip.

This study contributes to literature by linking protest exposure to life satisfaction in a way that illuminates broader processes of legitimacy and dissent. It advances beyond confirming the known effects of violence by highlighting the gendered and media-driven dimensions of unrest in a repressive regime. The paper proceeds as follows: Section 2 reviews the literature and develops our theoretical framework, Section 3 details the data and methodology, Section 4 presents the results, and Section 5 discusses their implications for Iran's political stability and beyond.

2. Theoretical Framework and Literature Review

2.1. Literature Review

Extensive research has investigated how violent events and political unrest shape subjective well-being, often measured via survey-based life satisfaction, happiness, or mental health. Studies on war provide a baseline. Shemyakina and Plagnol (2013) analyzed post-1992–1995 Bosnian War data, showing trauma and housing loss reduced life satisfaction, with exposure varying by region. Kijewski (2020) found World War II's effects persisted six decades later, lowering life satisfaction across generations. Yet, Djankov et al. (2016) detected no significant impact of WWII victimization on Eastern European life satisfaction in 2010, suggesting

contextual variation. Van Praag et al. (2010) examined the 2006 Israel-Lebanon War, finding no life satisfaction differences among Israelis surveyed during or after, despite violence.

Terrorism mirrors war's toll. Frey et al. (2009) reported significant life satisfaction declines in France and the British Isles due to terrorism's mental costs. Farzanegan et al. (2017) confirmed this across 81 countries (1994-2009), linking terrorism to insecurity. However, protests, which can be seen as the most common form of modern political conflict (Liu, Modrek, and Sieverding 2019), have the potential of escalating into revolutions or civil wars (Ishak and Farzanegan 2022). Liu et al. (2019) studied Egypt's Arab Spring using youth panel data (2009, 2013/2014), finding protest exposure increased uncertainty, with young women experiencing worse mental health declines than men. Cheung (2022) linked Hong Kong's Occupy Movement participation to lower life satisfaction, citing violence and polarization; Lau et al. (2017) noted similar mental health declines.

Conversely, peaceful protests can enhance well-being. Klar and Kasser (2009) found U.S. activism boosted social cohesion while Ni et al. (Ni et al. 2020) reviewed collective actions, suggesting reduced depression via catharsis. Welzel (2013) argued emancipative values from protests elevate well-being through empowerment, though violence may reverse this. Mechanisms vary: Grinshteyn et al. (2016) and Brenig and Proeger (2018) tied violence to insecurity, reducing life satisfaction across Europe (2002–2012), a finding that is supported by evidence from Jamaica (Spencer and Liu 2019) and South Africa (Cordeiro, Kwenda, and Ntuli 2020). Liu et al. (2019) highlighted uncertainty's role, particularly among youth, per the impressionable years hypothesis (Farzanegan and Gholipour 2021).

Iran's "Woman, Life, Freedom" (WLF) protests, sparked by Mahsa Amini's 2022 death, offer a distinct case. Described as the longest anti-government uprising since 1979 (Ghobadi 2022), they featured female leadership (Afary and Anderson 2023; Kashani-Sabet 2023) and violent repression. Asadzade (2024) found that the Tehran protests thrived in educated, university-adjacent areas with metro access, suggesting spatial patterns. This aligns with broader protest research, but WLF's gender focus and scale, amid a populous, regionally influential state, demands a focus on well-being.

2.2. Theoretical Framework

We argue that exposure to violent protests reduces life satisfaction, signaling political discontent in repressive contexts, beyond mere psychological effects. The "protest environment" blends demonstrations and state repression, with violence driving insecurity (Brenig and Proeger 2018) and uncertainty (Liu, Modrek, and Sieverding 2019), unlike peaceful protests where empowerment prevails (Welzel 2013; Ni et al. 2020).

Three hypotheses guide our WLF analysis:

- **H1**: Proximity to violent protests decreases life satisfaction, as insecurity and instability overshadow catharsis in a repressive state (Grinshteyn et al. 2016; Cheung 2022).
- **H2**: Women experience larger declines than men, reflecting WLF's female-led nature and gendered vulnerabilities (Liu, Modrek, and Sieverding 2019; Afary and Anderson 2023).
- **H3**: International media exposure amplifies the effect, heightening discontent via violence awareness (Liu, Modrek, and Sieverding 2019).

The assumption of the first hypothesis (H1) is that protests affect life satisfaction (Cheung 2022), and a large number of the protests were characterized by violence and even death. Therefore, the assumption is that such a psychologically stressful atmosphere will reduce life satisfaction. Moreover, the mechanism of how the protests affect life satisfaction will be explored with this hypothesis. The assumption relies on the idea that the violent protest atmosphere reduces the overall feeling of security (Grinshteyn et al. 2016). This reduction in the feeling of safety lowers life satisfaction. The relationship between the feeling of security and life satisfaction has been studied by several authors (Brenig and Proeger 2018; Spencer and Liu 2019; Cordeiro, Kwenda, and Ntuli 2020) who show that feelings of insecurity reduce life satisfaction.

As the protests were highly related to female rights and demands of women (Afary and Anderson 2023; Kashani-Sabet 2023), the assumption of the second hypothesis (H2) is that the impact of the protests on life satisfaction is different among male and female respondents. In a psychological study, Ni et al. (2020) show that female gender is a risk factors for poorer mental health following major protests, which supports the argument. Moreover, the trigger of the protests was the death of Jina Mahsa Amini and the main slogan was "Woman, Life, Freedom," which both reflect the strong attachment of Iranian women to the protests. The protests, the reaction of security forces, and the death of Jina Mahsa Amini are all incidents that can affect life satisfaction.

The rationale behind the third hypothesis (H3) is that state-controlled media has an interest in de-escalation and often try to present control of the situation in order to reflect political stability. This suggests that national Iranian media shows less violence, which might help mitigate the negative effect of the protest environment on life satisfaction. On the contrary, international media outlets, some of which are connected to the Iranian opposition outside the country, have an interest to escalate the protests further and support the destabilization of the political system.

This suggests that international media shows more violence and use imagery that sparks strong emotions, which might help to amplify the negative effect of the protest environment on life satisfaction. Previous research has shown that news media exposure can positively or negatively affect life satisfaction (Iwanowska, Zawadzka, and Kondratowicz 2023).

3. Data and Methodology

This section describes the data and methods used to examine the effect of Iran's "Woman, Life, Freedom" (WLF) protests on life satisfaction in 2022, a politically turbulent period triggered by Mahsa Amini's death. We analyze two original, representative surveys conducted before and during the protests, employing probit regressions, an instrumental variable (IV) approach, and mediation analysis to test the hypotheses outlined in Section 2.2. These hypotheses link the protest environment, marked by violence and political discontent, to well-being, with a focus on proximity, gender, and media exposure, mediated by insecurity.

3.1. Data

In this study, the impact of the violent protest environment in the context of the "Woman, Life, Freedom" (WLF) protests in Iran on life satisfaction is evaluated using data from two self-developed surveys, collected by computer-assisted telephone interviews (CATI) and conducted in the Persian language. The two surveys were conducted by R-Research Limited.[1] The interviews of the first survey were conducted between 17 January 2022 and 4 February 2022 (before the WLF protests) among a representative sample of 1,306 Iranians, with 1,214 completed interviews. The interviews of the second survey were conducted between 9 and 20 November 2022 (during the WLF protests) among a representative sample of 1,373 Iranians, with 1,212 completed interviews. The margin of error of the samples in both surveys is approximately +/- 2.7%. To achieve a sample that represents the Iranian population, the surveys used a multi-stage cluster sampling approach with six stages, as presented in Figure A1 in the Appendix.

The sampling procedure includes two strata, namely the region and type of locality, which are the first two stages. For this reason, Iran is divided into nine regions, and these regions are further divided into rural and urban locations. The next two stages are the primary sampling units (PSU), which are cities, towns, and rural districts, and the secondary sampling units (SSU), which are the selection of municipal districts in tier I and tier II settlements. These types of settlements are cities with at least half a million residents. Within each defined sampling unit, the random digit dialing (RRD) method with landline telephone was used to randomly select

[1] This firm also conducted Wave 7 of the World Values Survey in Iran.

households, which is the fifth stage. Finally, in the sixth stage, the respondents were selected by the next birthday method, where only people older than 17 years and people younger than 66 years were considered.

With this approach, all Iranian provinces were covered but not every province was selected in the sample, as the sample was not stratified by province. On the basis of standard definitions of the American Association for Public Opinion Research (AAPOR 2016), the contact rate of the first survey was 89%, the cooperation rate 75%, and the overall response rate 67%. The interviews lasted 15-51 minutes, with an average of 24 minutes. In the second survey, the contact rate was 92%, the cooperation rate 70%, and the overall response rate 65%. The interviews lasted 14-68 minutes, with an average of 21 minutes. The response rates are close to the average response rates determined by Holtom et al. (2022) who found an average of 68% in 2020. Several authors also recommended minimum response rates of 50% or 60% (Draugalis, Coons, and Plaza 2008), which is also fulfilled by the two surveys.

An overview of the sampling distribution of completed interviews in each region compared to the share of the region's population is presented in Table A1 in the Appendix. The population in each of the nine regions was calculated based on the official Iranian 2016 Census (SCI 2018). Completed interviews in each region have a similar proportion of their respective region's population. Resulting from the random sampling procedure to determine the survey participants, we also have a representative distribution of other characteristics such as age, gender, and education, as presented in Table A2 in the Appendix. The results from two-sided t-tests show that the shares of characteristics are not significantly different when comparing the census shares with the shares of the two surveys. Therefore, the achieved shares of respondents' characteristics are comparable with the general population of Iran. Table A3 in the Appendix presents the variables used in the analysis, which includes the responses to the questions of both surveys and the used conflict data (ACLED 2023). Additionally, Figure A2 in the Appendix includes a map indicating the locations of respondents and protests.

3.1.1. Dependent Variable

The dependent variable in our estimations is life satisfaction, measured by a binary variable which was re-scaled from a four-point Likert scale. The corresponding question from the survey is "All things considered, how satisfied are you with your life as a whole these days?" with the possible answers "Completely dissatisfied," "Rather dissatisfied," "Rather satisfied," and "Completely satisfied." The binary variable is 1 if respondents are completely and rather satisfied and the value is 0 if respondents are completely and rather dissatisfied. The descriptive

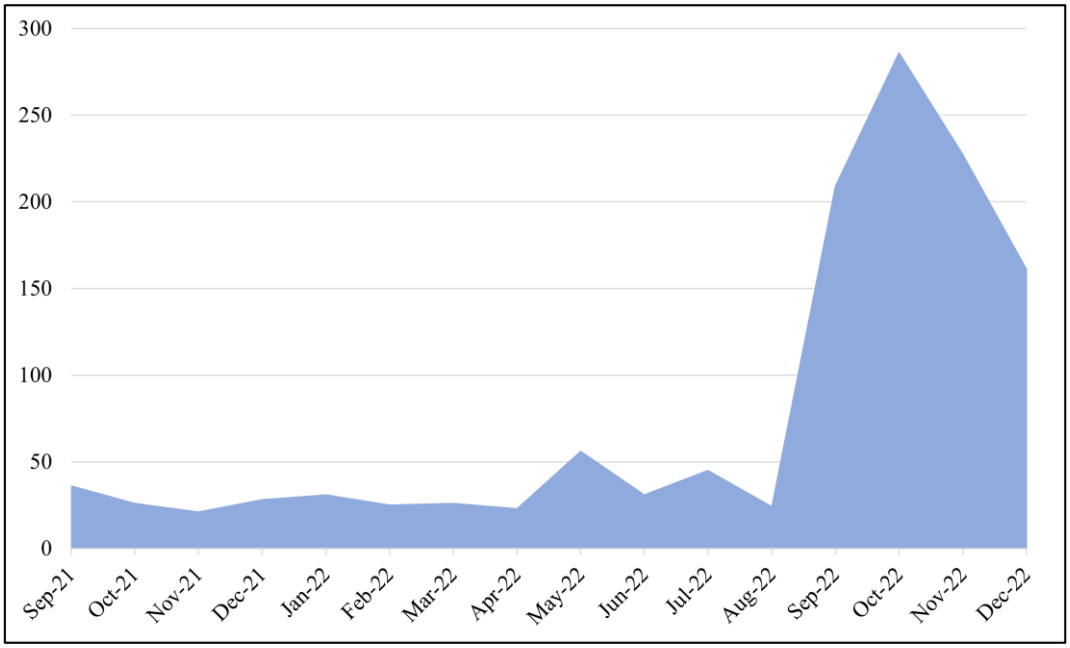
statistics presented in Table A3 in the Appendix already provide a first glimpse into the difference in life satisfaction between the two surveys. The share of respondents who are completely and rather satisfied decreased by 4.78 percentage points.

Given the difficulty of objectively measuring happiness and life satisfaction, past studies in the literature have turned to the use of self-reported happiness and life satisfaction, gathered through surveys. Kahneman and Krueger (2006) show that these self-reported measures are valid because they correlate with behavior such as smiling, better sleeping, and more frequent verbal expression of positive emotions, among others. Additionally, psychological experiments have shown that self-reported well-being from surveys correlates with activity in the parts of the brain associated with pleasure and satisfaction (Urry et al. 2004).

3.1.2. Key Explanatory Variable

The "Woman, Life, Freedom" protests were triggered by the death of Jina Mahsa Amini on 16 September 2022 while in custody of the morality police in Tehran. During these protests, people took to the streets to express their anger and demand political change. Between 16 September 2022 and 31 December 2022, Iran experienced 1,940 protest events which affected all 31 provinces (ACLED 2023). While 1,070 events (55%) were labeled as peaceful, there was also a large share (45%) of violent events. Figure 1 presents the number of violent events in Iran per month and highlights the violent atmosphere of the 2022 protests which had not been seen in previous protests. According to the data, the largest number of violent events took place in October and November 2022 with 286 and 227 violent events, respectively. This study considers an event as violent if it was not labeled as a "peaceful protest" by the Armed Conflict Location & Event Data Project (ACLED). As there were no other major political events, for example: elections or new international disputes, between the two surveys, the assumption is that the change of life satisfaction within less than a year is the result of the 2022 protests. In addition, the COVID-19 pandemic no longer played a role in Iran during the studied period.

Figure 1: Number of violent events per month in Iran, 2021-2022



Source: authors' illustration with ACLED (2023) data.

To measure the impact of the partly violent protest environment on life satisfaction, we create different dummy variables and measures. The first approach uses a dummy variable that is 1 if a respondent is from the second survey (in November 2022). Here, all respondents in the second survey are considered treated. This first approach is the least restrictive and assumes that all respondents of the second survey are treated due to direct or indirect exposure to protests, for example through participation, direct observation, or observation through media. Figure A2 in the Appendix shows that almost all respondents were located close to protest locations.

The second approach uses a dummy variable that is 1 if a respondent from the second survey is located in the same city as the protests, and 0 otherwise. The two surveys provide the cities or rural districts of the respondents, and the coordinates of the protest events are provided by ACLED. These coordinates are utilized to calculate the distances of respondents from protests. In this approach, the assumption is that proximity to protests matters. If an event happens in the city of residence, residents might be directly or indirectly affected, in this case by the protest environment. By protest environment, we refer to the situation of protests associated with violence, disruption of infrastructure and services, political instability, and uncertainty about the future.

The third measure is the number of protests in the respondent's city which is used with an instrumental variable approach. With this measure, it will be determined if the number of protests (quantity) plays a role in the relationship between protests and life satisfaction.

The fourth measure is the number of protests in the respondent's city (and other distances) which is differentiated between violent and peaceful protests. With this measure, it will be determined if the type of protests (quality) plays a role in the relationship. Table A4 in the Appendix gives an overview of all measures used.

3.2. Estimation Methodology

3.2.1. Specification

The research design is based on two representative surveys in Iran which were conducted with the same sampling approach. The first survey was conducted in early 2022 and the second survey was conducted in late 2022, during the peak of the protests. We assume that participants of the second survey are the treatment group and that the participants of the first survey are the control group. The treatment is the protest environment which is measured by the different protest measures as were previously discussed. We consider the respondents of the second survey as the treated group because they have directly or indirectly been exposed to the protest environment. By exposed, we do not mean that the respondents have necessarily taken part in protests. The survey did not include questions that asked about participation in the protests.
To examine the hypotheses outlined in Section 2.2., probit regressions are employed as the estimation methodology, and the following specification is used:

$$Life\ Satisfaction_i = \gamma_0 + \gamma_1 \cdot Protest_i + \gamma_2 \cdot Controls_i + \varepsilon_i \quad (1)$$

This approach aims to explain the respondents' life satisfaction by the different measures of protest, which will be utilized in different estimations, and by additional control variables. The constant (γ_0) and error term (ε) are also included. The control variables include gender, age, marital status, employment status, perception of corruption, religiosity, education, and social class. Except for age, all explanatory variables are binary or categorical variables.

3.2.2. Instrumental Variable

To account for potential reverse feedback, an instrumental variable approach is employed, using precipitation as an instrument for the number of protests. Precipitation is measured as the average daily precipitation (in millimeters) during the period covered by the protest data used

in the study (from 16 September 2022 to 8 November 2022) for respondents of the second survey. For respondents of the first survey, precipitation is measured as the average daily precipitation over the same number of days preceding the start of the first survey. Data is sourced from version 6 of the Global Precipitation Measurement (GPM) dataset, provided by the Goddard Earth Sciences Data and Information Services Center (Huffman et al. 2019). The precipitation data is aggregated at the county level to align with the respondents' locations. Additionally, the distance from each respondent's location to the city of Saqqez (in kilometers) is used as another instrument. Saqqez is the hometown of Mahsa Amini, where the protests first began and spread from.

The regular assumptions for instrumental variable approaches are also considered, which are relevance, independence, and exclusion. A valid instrument must be correlated with protests, and there should be no possible mechanism through which life satisfaction affects the instrument. As rainfall is exogenous and fulfils the exclusion restriction, we consider it an adequate instrument. The rationale behind the usage of precipitation as an instrument for protests is that rainfall can affect participation at protests which has been shown in several studies (Sarsons 2015; Coulibaly and Managi 2022). To further explore the exclusion criterion, the zero first-stage test was applied where an auxiliary regression is used to estimate the relationship between the instrument and life satisfaction for the subsample of respondents from the first survey. The assumption is that the relationship is statistically insignificant, which would suggest no relationship between rainfall and life satisfaction. This would provide evidence that the exclusion criterion is satisfied (van Kippersluis and Rietveld 2018). Table A5 in the Appendix presents the results of the zero first-stage tests. Column A5.2 shows that there is no statistically significant relationship between rainfall and life satisfaction before the protests, which provides evidence that the exclusion criterion is satisfied. There are also studies who show that weather does not reliably affect judgments of life satisfaction (Lucas and Lawless 2013).

Additionally, rainfall can be considered a relevant instrument, as the weak instrument test yields an F-statistic of 46.03, providing evidence to reject the null hypothesis of a weak instrument. The rationale behind the second instrument is that the distance to Saqqez is correlated with the number of protests but is not directly influenced by life satisfaction, making it exogenous and relevant. Furthermore, the weak instruments test yields an F-statistic of 124.77, providing additional evidence to reject the null hypothesis of a weak instrument.

Table A5 in the Appendix also presents the results of the zero first-stage tests. Column 3 shows that there is a statistically significant relationship between distance and life satisfaction before the protests, which provides evidence that the strict exclusion criterion is not satisfied. However, it is possible to relax the strict exclusion restriction, as long as the relevance and independence assumptions remain satisfied. Studies have shown that the instrument can still be meaningful and a slightly biased but strong instrument may be preferable to a less biased but weak instrument (Small and Rosenbaum 2008; van Kippersluis and Rietveld 2018). As two instruments are used for one endogenous variable, the overidentifying restrictions test is applied to address the independence assumption. It shows Wooldridge's test statistic of 2.52 with a p-value of 0.11, providing evidence that the independence criterion is satisfied.

The instrumental variable approach is operationalized in the following way:

$$Protest_i = \pi_0 + \pi_1 \cdot Instrument_i + \pi_2 \cdot Controls_i + u_i \quad (2)$$

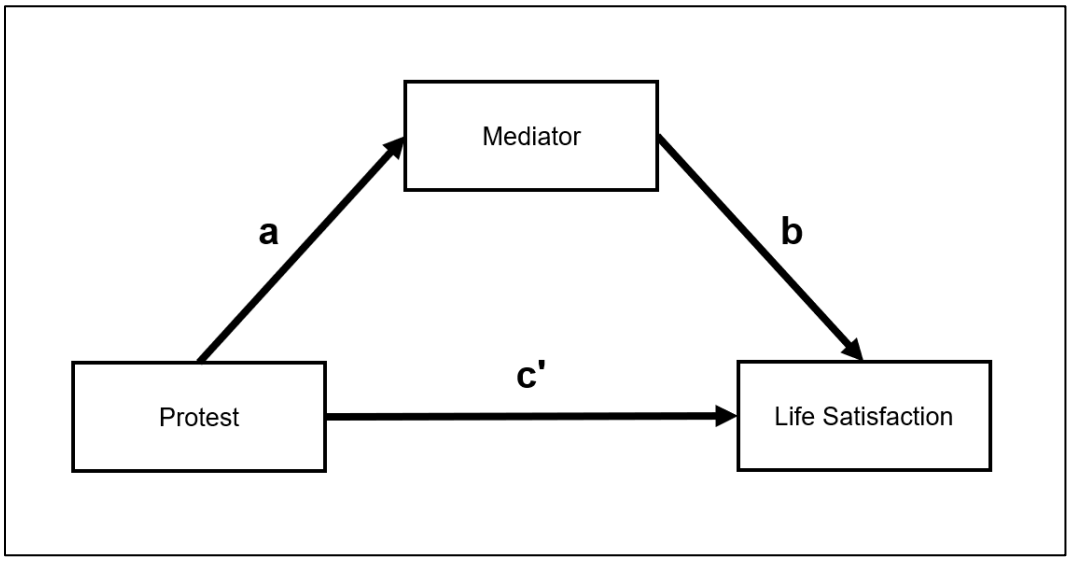
The first stage presented in equation (2) uses the endogenous explanatory variable from equation (1), which is the protest measure, as dependent variable. In the second stage, the predicted values of the protest measure will be included in the original model.

$$Life\ Satisfaction_i = \gamma_0 + \gamma_1 \cdot \widehat{Protest}_i + \gamma_2 \cdot Controls_i + e_i \quad (3)$$

3.2.3. Mediation Analysis

To explore the mechanism of how protests might affect life satisfaction, this study utilizes mediation analysis (Baron and Kenny 1986). The following Figure 2 presents the mediation model.

Figure 2: The mediation model of protests and life satisfaction



The graphical illustration of the mediation model assumes that there is a mediator between the effect of protests on life satisfaction. Without the mediator, the total effect can be labelled with path *c*, which will become path *c'* in the mediation model. Path *a* is the effect of protests on the mediator, for example the feeling of security, and path *b* is the effect of the mediator on life satisfaction. These two paths reflect the indirect effect while path *c'* reflects the direct effect. In the first step, the mediator is used as dependent variable, and the protest measure is used as the explanatory variable:

$$Mediator_i = \alpha_0 + \alpha_1 \cdot Protest_i + \alpha_2 \cdot Controls_i + \varepsilon_i \quad (4)$$

Thus, equation (4) determines the relationship between protests and the mediator (path *a*), which is the feeling of security in this study. The coefficient α_1 reflects a part of the indirect effect of protests on life satisfaction. Path *b* is determined by the following equation:

$$Life\ Satisfaction_i = \beta_0 + \beta_1 \cdot Mediator_i + \beta_2 \cdot Protest_i + \beta_3 \cdot Controls_i + \varepsilon_i \quad (5)$$

The coefficient β1 reflects the other part of the indirect effect of protests on life satisfaction. Finally, the total effect (*c*), direct (*c'*), and indirect (*ab*) effects will be calculated. In the probit

estimations, standardized coefficients are used to make coefficients comparable across models. The total effect ($c = c' + ab$) is reflected by the coefficient $\gamma 1$ in equation (1) when modeling without latent variables. However, in the probit estimations, the total effect must be calculated using the sum of the indirect and direct effects ($\alpha 1\beta 1 + \beta 2$). The direct effect is reflected by the coefficient $\beta 2$ in equation (5), and the indirect effect is calculated by multiplying the coefficient $\alpha 1$ with the coefficient $\beta 1$. With these values, several ratios can be calculated, for example the proportion of the total effect that is mediated ($\alpha 1\beta 1 / \gamma 1$), the ratio of indirect to direct effect ($\alpha 1\beta 1 / \beta 2$), and the ratio of total to direct effect ($\gamma 1 / \beta 2$). In the probit estimations, the coefficient $\gamma 1$ must be replaced by $\alpha 1\beta 1 + \beta 2$ in the calculations of ratios.

4. Results and Discussion

The results of empirical investigation using probit regressions are presented in Table 1, where the average marginal effects are reported. The first three columns use the protest dummy variable which is 1 if the respondent was in the second survey and 0 otherwise, and the last three columns use the dummy variable which is 1 if protests were in the same city as respondents and 0 otherwise. According to the results of the first column, respondents who were exposed to protests have a 3.6 percentage point (pp) lower probability of being satisfied with life. When considering the proximity to the protests, as reflected in column 4, the effect becomes larger. Results based on other distances are reported in Table A6 in the Appendix. The second column of Table 1 suggests that the effect is stronger for female respondents who have a 5.6 pp lower probability of being satisfied with life. When only considering the male subsample, the coefficient of the protest dummy variables becomes insignificant.

Table 1: Determinants of life satisfaction, marginal effects of probit estimations

Dependent variable: Life satisfaction	(2.1) Survey Dummy, Full Sample	(2.2) Survey Dummy, Female	(2.3) Survey Dummy, Male	(2.4) Home Dummy, Full Sample	(2.5) Home Dummy, Female	(2.6) Home Dummy, Male
Protests	-0.0358**	-0.0564***	-0.0120	-0.0382**	-0.0776***	0.0055
	(-2.45)	(-2.67)	(-0.44)	(-2.49)	(-3.47)	(0.19)
Female	0.0391*			0.0381*		
	(1.78)			(1.73)		
Age	-0.0081	-0.0117	-0.0066	-0.0075	-0.0104	-0.0071
	(-1.45)	(-1.29)	(-0.73)	(-1.35)	(-1.17)	(-0.80)
Age²	0.0001*	0.0001	0.0001	0.0001	0.0001	0.0001
	(1.67)	(1.43)	(0.90)	(1.60)	(1.34)	(0.98)
Married	0.0551**	0.0716*	0.0462	0.0508**	0.0629	0.0470
	(2.16)	(1.80)	(1.30)	(1.98)	(1.59)	(1.33)
Unemployed	-0.0628***	-0.0432	-0.0838**	-0.0633***	-0.0435	-0.0845**
	(-2.63)	(-1.27)	(-2.56)	(-2.65)	(-1.29)	(-2.57)
Corruption	-0.1575***	-0.1683***	-0.1467***	-0.1570***	-0.1662***	-0.1475***
	(-8.56)	(-6.72)	(-5.51)	(-8.55)	(-6.72)	(-5.54)
Religion	0.1617***	0.1595***	0.1586***	0.1601***	0.1559***	0.1579***
	(6.22)	(5.30)	(4.61)	(6.23)	(5.26)	(4.57)
Primary education	-0.1056***	-0.1334**	-0.0748	-0.1037***	-0.1372**	-0.0741
	(-2.74)	(-2.32)	(-1.23)	(-2.67)	(-2.38)	(-1.22)
Secondary education	-0.1349***	-0.1596***	-0.0997*	-0.1315***	-0.1597***	-0.0987*
	(-4.16)	(-3.47)	(-1.90)	(-4.06)	(-3.48)	(-1.91)
Tertiary education	-0.1904***	-0.2262***	-0.1390**	-0.1876***	-0.2266***	-0.1361**
	(-5.10)	(-4.19)	(-2.22)	(-5.00)	(-4.04)	(-2.17)
Working class	0.1041**	0.1097*	0.0963	0.1069**	0.1167**	0.0960
	(2.49)	(1.83)	(1.61)	(2.56)	(1.97)	(1.61)
Lower-middle class	0.1949***	0.2364***	0.1406***	0.1990***	0.2453***	0.1382***
	(5.57)	(4.66)	(2.99)	(5.69)	(4.90)	(2.94)
Upper and upper-middle class	0.3957***	0.3930***	0.3830***	0.4008***	0.4045***	0.3805***
	(9.69)	(6.51)	(7.81)	(9.85)	(6.78)	(7.68)
Observations	2256	1141	1115	2256	1141	1115

Notes: z-statistics based on robust standard errors clustered on the city-level with 67 clusters are reported in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

We also included several control variables which are known to affect life satisfaction, such as age, marital status, employment status, perception of corruption, religiosity, level of education, and self-reported social class. Female gender, being married, importance of religion, and several social classes are statistically significant and positively associated with life satisfaction; meanwhile, unemployment, perception of corruption, and several educational levels show statistically significant negative associations.

From the control variables, the strongest marginal effects can be seen when considering the educational levels and self-reported social classes. Both are categorical variables with four categories. We differentiate four educational levels: illiterate, primary education, secondary education, and tertiary education. The reference group is illiterate, which is not included in the estimation. The results suggest that respondents with higher educational levels are less satisfied with life; for example, respondents who reported tertiary education have a 19 pp lower

probability of being satisfied with life. We define the social classes in four categories: lower class, working class, lower-middle class, and upper-middle class. The latter also includes four upper-class respondents. Compared to the reference group, which is lower class, respondents from the other social classes report higher life satisfaction; for example, upper and upper-middle class respondents have a 39.6. pp higher probability of being satisfied with life.

To additionally test if proximity to the protests is responsible for the measured impact, we created different dummy variables which were used in the estimations presented in Table A6 in the Appendix. These dummy variables are 1 if the respondents were exposed to protests within 25 km, 50 km, and 75 km radius of the respondent's location, and 0 otherwise. We calculate the distance between the respondent and the protest event using Vincenty's (1975) formula. The two surveys provide us with the cities or rural districts of the respondents, from which we derive the coordinates of the centroids. The coordinates of the protest events are provided by ACLED; therefore, the distances can be calculated. According to the results, the marginal effect of the protests on life satisfaction becomes smaller when the distances increase. For example, the effect is 3.91 pp when the radius is 25 km, 2.98 pp when the radius is 50 km, and 2.92 pp when the radius is 75 km. The Appendix also includes a table that presents the results when using urban and rural subsamples (Table A7), showing that the effect of protests on life satisfaction is only statistically significant and negative on conventional levels in the urban subsample.

4.1. The Role of Media Consumption

The findings in Table 2 address Hypothesis 3, which covers the role of media consumption in the final effect of protests on life satisfaction. Five different types of media are considered in this study, namely national television, international television, internet, newspaper, and radio, which are also presented in Table A3 in the Appendix. The subsamples are created based on respondents who consume these types of media daily and weekly. Table 2 presents the average marginal effects of the empirical investigation using probit regressions. According to the results, consumers of international television who were exposed to the protests have a 9 pp lower probability of being satisfied with life. The effect is larger than the effects of the full sample and of the sample with consumers of national television. This suggests that consumption of international television facilitates the negative effect of the protest environment on life satisfaction which supports Hypothesis 3.

Table 2: Determinants of life satisfaction using different media subsamples, marginal effects of probit estimations

Dependent variable: Life satisfaction	(3.1) Full sample	(3.2) National TV	(3.3) International TV	(3.4) Internet	(3.5) Newspaper	(3.6) Radio
Protests	-0.0358**	-0.0392**	-0.0901***	-0.0332*	-0.0617	-0.0070
	(-2.45)	(-2.26)	(-2.78)	(-1.89)	(-1.18)	(-0.18)
Female	0.0391*	0.0526**	-0.0020	0.0210	-0.0470	0.0213
	(1.78)	(2.35)	(-0.06)	(0.77)	(-0.80)	(0.51)
Age	-0.0081	-0.0018	0.0060	-0.0067	-0.0005	0.0102
	(-1.45)	(-0.27)	(0.63)	(-1.06)	(-0.04)	(0.98)
Age²	0.0001*	0.0000	-0.0000	0.0001	-0.0000	-0.0001
	(1.67)	(0.45)	(-0.43)	(1.09)	(-0.08)	(-0.88)
Married	0.0551**	0.0308	0.0131	0.0527*	0.0684	-0.0724
	(2.16)	(1.01)	(0.30)	(1.87)	(1.14)	(-1.46)
Unemployed	-0.0628***	-0.0445	-0.0191	-0.0588**	-0.0655	-0.0550
	(-2.63)	(-1.58)	(-0.51)	(-1.98)	(-0.89)	(-1.02)
Corruption	-0.1575***	-0.1483***	-0.1375***	-0.1743***	-0.1224***	-0.1518***
	(-8.56)	(-6.97)	(-3.76)	(-8.15)	(-2.60)	(-3.85)
Religion	0.1617***	0.1351***	0.1550***	0.1598***	0.1259**	0.0795*
	(6.22)	(5.70)	(4.12)	(5.78)	(2.31)	(1.80)
Primary education	-0.1056***	-0.0803*	-0.2552***	-0.0946	0.0538	-0.0608
	(-2.74)	(-1.95)	(-2.58)	(-1.17)	(0.33)	(-0.77)
Secondary education	-0.1349***	-0.1148***	-0.2613***	-0.1247	-0.0879	-0.1290**
	(-4.16)	(-3.35)	(-2.81)	(-1.56)	(-0.71)	(-2.20)
Tertiary education	-0.1904***	-0.1511***	-0.3530***	-0.1931**	-0.1527	-0.1095*
	(-5.10)	(-3.85)	(-3.72)	(-2.44)	(-1.21)	(-1.72)
Working class	0.1041**	0.1068**	0.1131*	0.0878	0.2011*	-0.0265
	(2.49)	(2.33)	(1.77)	(1.63)	(1.90)	(-0.33)
Lower-middle class	0.1949***	0.1799***	0.2002***	0.1744***	0.2456**	0.1106
	(5.57)	(4.20)	(3.42)	(3.68)	(2.40)	(1.45)
Upper and upper-middle class	0.3957***	0.3857***	0.4642***	0.3872***	0.4151***	0.2649***
	(9.69)	(7.89)	(8.11)	(7.29)	(4.40)	(3.25)
Observations	2256	1740	653	1641	274	560

Notes: z-statistics based on robust standard errors clustered on the city-level with 67 clusters are reported in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

4.2. The Role of Violent Protests

When evaluating the impact of protests on individual life satisfaction, the intensity of the protests in terms of quantity and quality can also be considered. We use the number of protests within the respondents' city as the primary measurement, and then separate this into peaceful and violent protests, categorized according to the utilized database (ACLED 2023). Out of the 1,222 protests in the studied period (16 September 2022 to 8 November 2022), 699 protests (57.2%) were categorized as peaceful protests, and the remaining 523 protests (42.8%) were categorized as violent protests. As presented in Table1, the results of the second survey show that 55.5% of respondents were in a city with any type of protest. More precisely, 53.1% were close to violent protests and 51.7% were close to peaceful protests. There is a huge overlap, which means that many respondents (49.3%) have experienced both forms of protest, making it difficult to discern the specific influence of each type.

Table 3 presents the average marginal effects of the empirical investigation using probit regressions where the second column separates the number of protests into violent and peaceful. The results suggest that violent protests have a negative effect on life satisfaction, but peaceful ones have a positive effect on life satisfaction. On one hand, an increase in exposure to a violent protest by one protest is associated with a 0.8 pp lower probability of being satisfied with life. On the other hand, an increase in the exposure to a peaceful protest by one protest is associated with a 0.4 pp higher probability of being satisfied with life. In addition to the direction of the effect, there is also another difference between the two types of protests, namely, that the impact of the violent protests is stronger in size.

Table 3: Determinants of life satisfaction using number of protests, different types of protests, instrumental variable approach, marginal effects of probit estimations

Dependent variable:	(4.1)	(4.2)	(4.3)	(4.4)	(4.5)	(4.6)
Life satisfaction	Probit Full Sample	Probit Full Sample	Probit IV Full Sample	Probit Second Survey	Probit Second Survey	Probit IV Second Survey
Number of protests	-0.0002*		-0.0034***	-0.0002*		-0.0017**
	(-1.82)		(-3.19)	(-1.70)		(-2.34)
Number of violent protests		-0.0083*			-0.0085*	
		(-1.89)			(-1.86)	
Number of peaceful protests		0.0040*			0.0040*	
		(1.73)			(1.70)	
Female	0.0387**	0.0399**	0.0334	0.0318	0.0346	0.0272
	(2.03)	(2.09)	(1.55)	(1.16)	(1.26)	(0.94)
Age	-0.0078	-0.0074	-0.0029	0.0105	0.0115	0.0148*
	(-1.44)	(-1.36)	(-0.49)	(1.40)	(1.54)	(1.85)
Age²	0.0001*	0.0001	0.0001	-0.0001	-0.0001	-0.0001
	(1.67)	(1.60)	(0.83)	(-0.99)	(-1.12)	(-1.34)
Married	0.0513**	0.0506**	0.0359	0.0035	0.0011	-0.0148
	(2.07)	(2.04)	(1.24)	(0.10)	(0.03)	(-0.39)
Unemployed	-0.0644***	-0.0635***	-0.0858***	-0.0380	-0.0361	-0.0579*
	(-2.74)	(-2.70)	(-3.26)	(-1.15)	(-1.09)	(-1.65)
Corruption	-0.1578***	-0.1569***	-0.1465***	-0.1680***	-0.1661***	-0.1603***
	(-8.42)	(-8.37)	(-6.87)	(-6.45)	(-6.38)	(-5.80)
Religion	0.1590***	0.1576***	0.1315***	0.1649***	0.1617***	0.1362***
	(7.73)	(7.66)	(5.24)	(5.71)	(5.59)	(4.04)
Primary education	-0.1038**	-0.1030**	-0.0881*	-0.1850***	-0.1827***	-0.1667**
	(-2.32)	(-2.30)	(-1.84)	(-2.80)	(-2.76)	(-2.40)
Secondary education	-0.1325***	-0.1309***	-0.1015**	-0.1340**	-0.1307**	-0.1043*
	(-3.33)	(-3.29)	(-2.26)	(-2.34)	(-2.28)	(-1.65)
Tertiary education	-0.1881***	-0.1866***	-0.1465***	-0.2299***	-0.2270***	-0.1923***
	(-4.36)	(-4.33)	(-2.97)	(-3.67)	(-3.61)	(-2.74)
Working class	0.1063***	0.1052***	0.1240***	0.0707	0.0693	0.0889*
	(2.90)	(2.86)	(3.21)	(1.41)	(1.37)	(1.71)
Lower-middle class	0.1986***	0.1970***	0.2356***	0.2101***	0.2084***	0.2474***
	(5.64)	(5.59)	(6.10)	(4.35)	(4.31)	(4.76)
Upper and upper-middle class	0.4020***	0.4003***	0.4500***	0.4847***	0.4835***	0.5323***
	(10.75)	(10.70)	(10.84)	(9.51)	(9.49)	(9.71)
Observations	2256	2256	2256	1106	1106	1106

Notes: z-statistics based on robust standard errors clustered on the city-level with 67 clusters are reported in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

The finding that violent events can reduce life satisfaction supports the results of previous studies using different measures of subjective well-being (Welsch 2008; Frey, Luechinger, and Stutzer 2009; Shemyakina and Plagnol 2013; Coupe and Obrizan 2016; Farzanegan, Krieger, and Meierrieks 2017; Kijewski 2020). Welsch (2008) argues that the social costs of civil conflict are also of an intangible character, which means that the violent environment may also affect people not physically involved in conflict. This can happen through self-interest and altruism. First, the consequences of a violent environment can include health and psychic costs in terms of pain, suffering, fear, and agony. Second, individuals may feel empathy for those who have become victims of violent protests, for example relatives, friends, or even people not personally known. This can explain our findings regarding the negative impact of violent protests on life satisfaction. There has also been a discussion that violent protests neither help the protestors nor help the government, because repression of protests might not always stop them (Aytaç, Schiumerini, and Stokes 2018; Bartusevičius, van Leeuwen, and Petersen 2023; Bell and Murdie 2018) and violent ones can reduce the societal support of protestors (Simpson, Willer, and Feinberg 2018). Our findings reveal a possible channel of how the support of protests can be affected, namely through life satisfaction.

Another argument for the important role of violence in the context of the "Woman, Life, Freedom" protests is that the initial event that led to the protests was an act of violence, namely the death of Jina Mahsa Amini. The phenomenon that state repression and police violence can spark protests and other forms of civic engagement has been discussed in the context of democratic and non-democratic countries. For example, Ang and Tebes (2023) and Morris and Shoub (2023) show how police violence can increase civic engagement in the United States while Hager and Krakowski (2022) show, based on their study on Communist Poland, how state repression in the form of surveillance can spark protests. In addition, Grewal (2023) shows that non-violent protestor behavior and fraternization with security personnel, among other factors, helped to reduce repressive behavior of soldiers during protests in Algeria, which highlights the importance of peaceful protests.

According to our results, peaceful protests have a positive effect on life satisfaction, which can be explained by several mechanisms. There are authors who show how protests and other forms of political participation can have a positive effect on subjective well-being (Frijters, Haisken-DeNew, and Shields 2004; Welzel 2013; Cheung 2022; Klar and Kasser 2009). One possible explanation is that participation in protests can facilitate a feeling of empowerment and political emancipation which can increase life satisfaction (Welzel 2013; Cheung 2022). While this only applies to people who have participated in protests, there is also evidence that political freedom

increases life satisfaction (Frijters, Haisken-DeNew, and Shields 2004). Therefore, we argue that peaceful protests give a signal to the population that political freedoms, such as the right to associate, exist, which, in turn, increase the life satisfaction of the whole population — not just those who participated in the protests.

Another possible explanation is that peaceful protests can serve as a collective cathartic experience and give the feeling of greater social cohesion which can increase subjective well-being (Ni et al. 2020). In their literature review, Ni et al. (2020) show that collective actions may reduce depression and suicide, which can be indicators of improved life satisfaction. They argue that protests can be interpreted as a collective expression of grievances action, serving as a cathartic experience. Another argument is that greater social cohesion among subpopulations, either supporting or opposing the cause of the collective action, can strengthen social ties, which in turn could buffer the adverse impact of a violent protest environment. Moreover, Ni et al. (2020) find that the negative impact of exposure to collective action appears to vary with the level of violence, which can explain the different effect that we find in the case of violent and peaceful protests in Iran.

To address the potential reverse feedback of the outcome variable and a possible measurement error in the measurement of the number of protests, Table 3 also uses an instrumental variable (IV) approach in the third column which estimates the impact of protests on life satisfaction. Table A5 in the Appendix includes the first stage estimations of the instrumental variable approach. Protests are measured as the number of protests within the city of the respondent; the instruments are the average daily precipitation and the distance from the city of Saqqez. According to the results in column 4.3, an increase of protests in the respondents' city by one protest is associated with a decrease of life satisfaction by 0.3 percentage points. However, most respondents in the sample were exposed to more than one protest, as presented in Table A8 in the Appendix. Respondents in the sample were, on average, exposed to 77.4 protests, which suggests a 23 pp lower probability of being satisfied with life. To test if the final effect of protests on life satisfaction does not just come from the difference between the two surveys, Table 3 also includes estimations where only the responses from the second survey are used. This supports the assumption that both the existence of protests in general (as presented in Table 1 and Table 2 using dummy variables) as well as the number and type of protests (as presented in Table 3) matter.

4.3. The Mediating Role of the Feeling of Security

Mediation analysis is utilized to explore the mechanism of how protests affect life satisfaction. The results presented in Table 4 show that the feeling of security significantly mediates the negative effect of protests on life satisfaction.

Table 4: Direct, indirect, and total effects of protests on life satisfaction using mediation analysis

	(4.1) Home Dummy (n=2253)	(4.2) 25 km Dummy (n=2253)	(4.3) 50 km Dummy (n=2253)	(4.4) 75 km Dummy (n=2253)	(4.5) 100 km Dummy (n=2253)	(4.6) Survey Dummy (n=2253)
Indirect effect of feeling of security	-0.0290***	-0.0237***	-0.0183**	-0.0163**	-0.0126*	-0.0074
Direct effect of protests	-0.0280	-0.0388	-0.0299	-0.0309	-0.0401	-0.0467
Sum of indirect and direct effects	-0.0570**	-0.0625**	-0.0483*	-0.0471	-0.0527*	-0.0541*
Proportion of total effect mediated	0.5091	0.3793	0.3797	0.3451	0.2391	0.1370
Ratio of indirect to direct effect	1.0372	0.6111	0.6120	0.5270	0.3142	0.1588
Ratio of total to direct effect	2.0372	1.6111	1.6120	1.5270	1.3142	1.1588

Notes: Results are based on probit estimations and standardized coefficients. Bootstrapped standard errors with 500 replications are used for the probit estimations. The different paths of the mediation analysis for model 4.1 are reported in Table A9 in the Appendix as marginal effects. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

The mediating variable *Feeling of Security* is a dummy variable that is 1 for respondents who feel "very secure" and "quite secure" in their neighborhood and 0 otherwise. This indicator was re-scaled from a four-point Likert scale. As presented in Table A3 in the Appendix, 84.36% of respondents in the total sample feel secure, and the share of respondents who feel secure has decreased from the first to the second survey. Previous studies have also discussed the role of feelings of security in the context of life satisfaction (Brenig and Proeger 2018; Cordeiro, Kwenda, and Ntuli 2020). The decreasing effect of protests on security is plausible given the violence reported during the protests, which makes it a valid mediator.

The results of the mediation analysis using probit estimations, presented in column 4.1 of Table 4, suggest that 50.9% of the total effect of protests on life satisfaction can be explained by the mediator. In this estimation, protests are measured through the dummy variable that is 1 if there was protest in the respondent's hometown. When considering different distances from protests, the results show a decrease in the indirect effects (columns 4.2 to 4.6) and a decrease of the total mediated share from 37.9% to 13.7%. This highlights that the distance to protests play a

role not just for its effect on life satisfaction, but also for the mediating role of feelings of security.

The channel of feelings of security is also connected to the violent environment surrounding the protests due to the repression of protests by government forces and the violence of protestors against government forces and infrastructure. Therefore, it is important to reduce violence against protestors and security forces during protests. This also has additional benefits for the protestors and the government because police violence and repression of protests might fuel protests (Bell and Murdie 2018). Additionally, violent protests might reduce the societal support of protestors (Simpson, Willer, and Feinberg 2018), which could result in neither party achieving their goals. Canetti et al. (2017) also show that exposure to violence reduces compromise in a political conflict. This means, for the context of Iran, that people who have been exposed to violence are less willing to go into a constructive dialogue with the opposing party. Given the two parties involved (government and protestors), we would expect that violent protests will make reforms less likely and will be destructive societal cohesion.

5. Conclusion

Overall, the results indicate that the protest environment decreases life satisfaction, particularly for female respondents during the "Woman, Life, Freedom" protests. The protest dummy variable shows that respondents have a 3.6 percentage point lower probability of being satisfied with life, while female respondents have a 5.6 percentage point lower probability. Using an instrumental variable approach further supports the statistically significant negative effect of protests on life satisfaction.

When considering the intensity of protests in terms of both quantity and quality, we demonstrate that violence (rather than the act of protesting itself) is responsible for the decline in life satisfaction. This finding aligns with previous literature on the impact of violent events on subjective well-being (Welsch 2008; Frey, Luechinger, and Stutzer 2009; Shemyakina and Plagnol 2013; Coupe and Obrizan 2016; Farzanegan, Krieger, and Meierrieks 2017; Kijewski 2020). Further investigation through mediation analysis reveals that a sense of insecurity is a key mechanism that helps explain how protests can lead to a decrease in life satisfaction.

The findings further emphasize the negative impact of a violent protest environment on life satisfaction, which is linked to the two mediators. This suggests that reducing violence against both protestors and security forces during protests is crucial. Such efforts would not only benefit protestors and the government in achieving their respective goals but would also help prevent the delegitimization of either side. Violent actions during protests can undermine legitimacy

and hinder the potential for compromise in political conflicts (Bell and Murdie 2018; Canetti et al. 2017; Simpson, Willer, and Feinberg 2018).

To reduce violence during protests, a legal framework is needed that supports peaceful demonstrations while ensuring the prosecution of violent protestors. This will help prevent the incitement of violence by protestors themselves. Additionally, there should be training in de-escalation tactics and the recruitment of trained security personnel to minimize violence within the government's security forces. In the event of violent incidents, it is crucial to address and prosecute them transparently to prevent further escalation of tensions.

Our results also suggest that peaceful protests can enhance life satisfaction, which could serve as a stabilizing factor for the country, provided there is a clear legal framework supporting peaceful demonstrations. When people are able to openly express their grievances, they may be less likely to join violent groups. Additionally, peaceful protests can offer a collective cathartic experience (Ni et al. 2020), fostering a sense of greater social cohesion, which, in turn, can increase life satisfaction. Therefore, promoting a culture of peaceful dialogue and accountability is crucial for the sustainable development and harmony of the nation.

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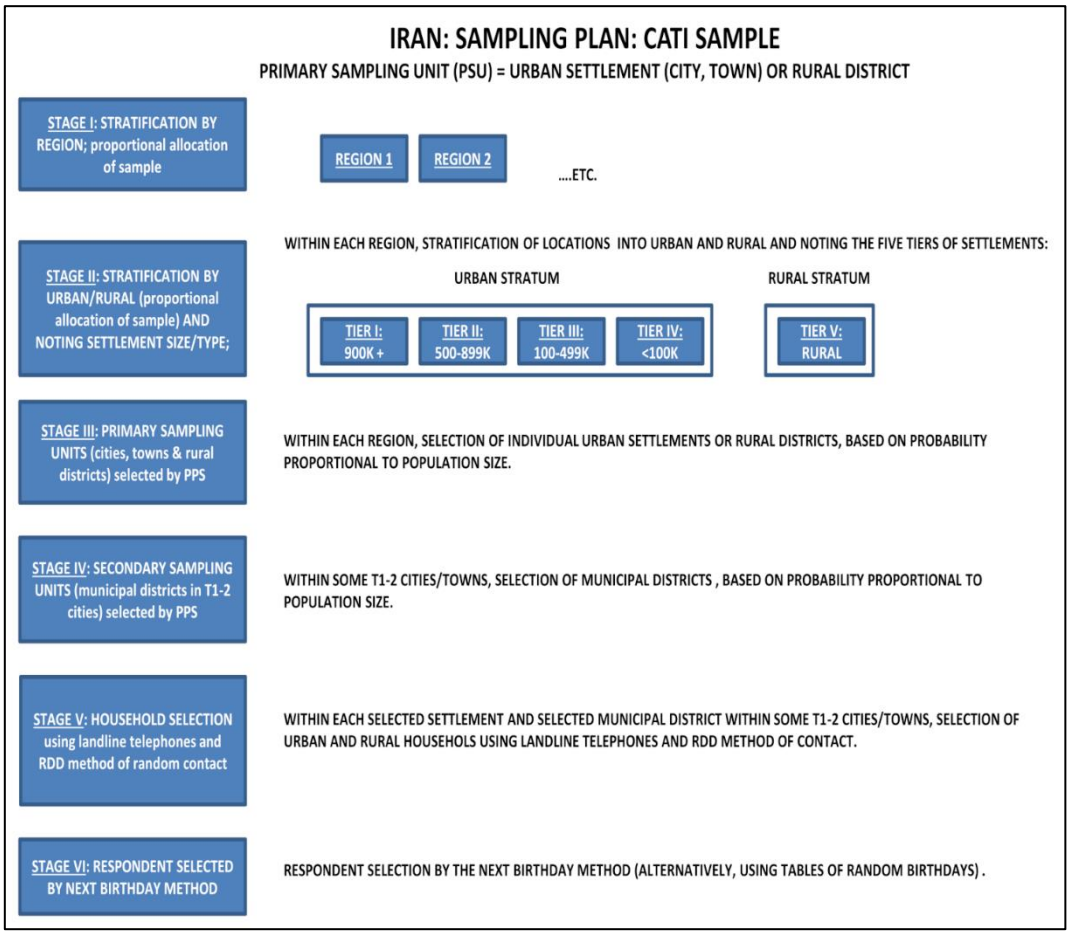
Appendix

Figure A1: Overview of the survey's multi-stage cluster sampling



Source: Technical Report of R-Research

Figure A2: Locations of respondents and protests

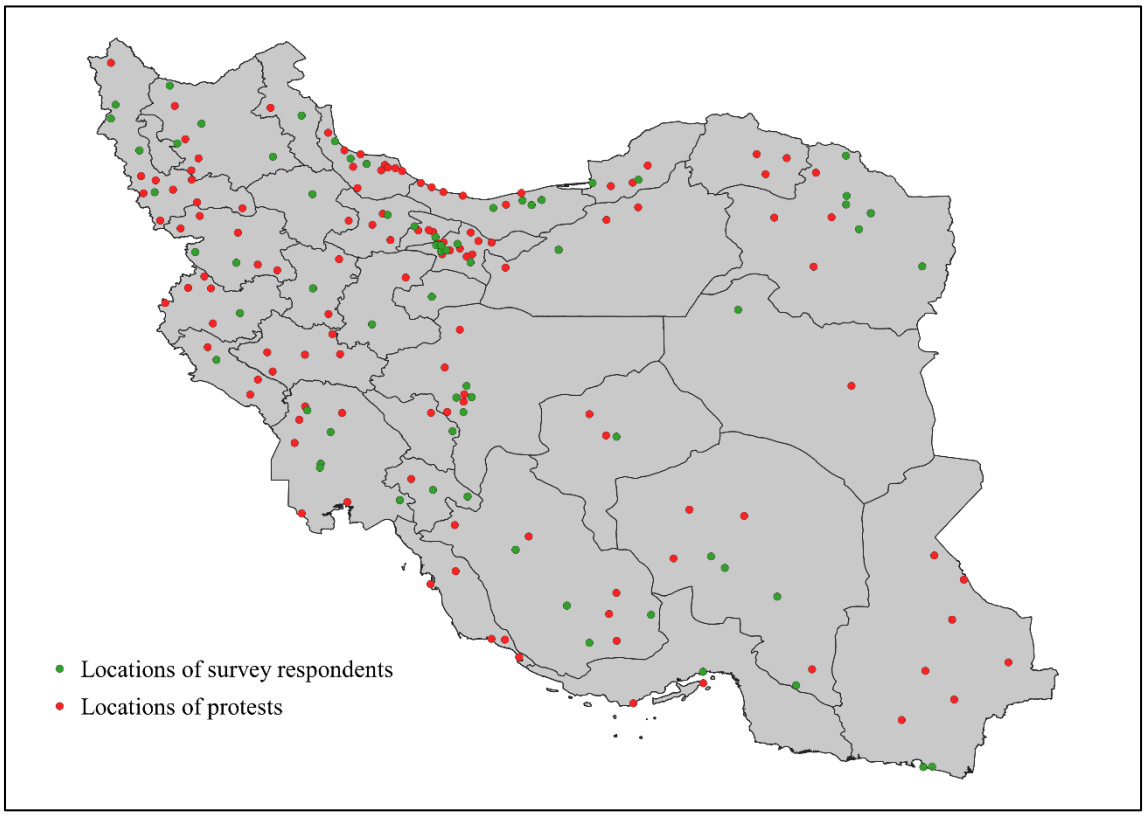


Table A1: Sample distribution of completed interviews

Region	Provinces	Share of population (Census 2016)			Completed interviews (Survey Jan./Feb. 2022)			Completed interviews (Survey November 2022)		
		Region	Urban	Rural	Region	Urban	Rural	Region	Urban	Rural
1. North	Gilan, Golestan, Mazandaran	10%	59%	41%	119 (9.8%)	71 (59.7%)	48 (40.3%)	120 (9.9%)	75 (62.5%)	45 (37.5%)
2. Tehran	Tehran, Alborz, Semnan, Qazvin, Qom, Markazi, Hamadan	28%	89%	11%	335 (27.6%)	305 (91%)	30 (9%)	335 (27.6%)	305 (91%)	30 (9%)
3. Centre	Isfahan, Chaharmahal and Bakhtiari, Yazd	9%	84%	16%	104 (8.6%)	89 (85.6%)	15 (14.4%)	106 (8.8%)	91 (85.9%)	15 (14.2%)
4. North-West	West Azerbaijan, East Azerbaijan, Ardabil, Zanjan	12%	69%	31%	149 (12.3%)	104 (69.8%)	45 (30.2%)	149 (12.3%)	105 (70.5%)	44 (29.5%)
5. North-East	Razavi Khorasan, North Khorasan, South Khorasan	10%	70%	30%	120 (9.9%)	90 (75%)	30 (25%)	120 (9.9%)	90 (75%)	30 (25%)
6. South-West	Khuzestan, Lorestan	8%	73%	27%	94 (7.7%)	63 (67%)	31 (33%)	94 (7.8%)	64 (68.1%)	30 (31.9%)
7. South	Fars, Kohgiluyeh and Boyerahmad, Bushehr, Hormozgan	11%	66%	34%	125 (10.3%)	80 (64%)	45 (36%)	126 (10.4%)	81 (64.3%)	45 (35.7%)
8. West	Ilam, Kurdistan, Kermanshah	5%	73%	27%	75 (6.2%)	59 (78.7%)	16 (21.3%)	75 (6.2%)	60 (80%)	15 (20%)
9. South-East	Sistan and Baluchestan, Kerman	7%	54%	46%	93 (7.7%)	48 (51.6%)	45 (48.4%)	87 (7.2%)	45 (51.7%)	42 (48.3%)
Total		**100%**	**74%**	**26%**	**1214 (100%)**	**909 (74.9%)**	**305 (25.1%)**	**1212 (100%)**	**916 (75.6%)**	**296 (24.4%)**

Notes: The share of population in the nine regions and the share of urban and rural population within each region are based on the official Iranian 2016 Census (SCI 2018) as presented in the technical reports of R-Research.

Table A2: Characteristics of respondents in the survey samples compared to the general population

		Target	Achieved (Survey 1: Jan./Feb. 2022)	Achieved (Survey 2: November 2022)
Age	18–24	15%	12.8%	12.5%
	25–49	59%	50.4%	58.3%
	50–59	13%	23.7%	19.4%
	60–65	4%	12.9%	9.4%
Gender	Female	49.6%	50.6%	50.9%
	Male	50.4%	49.4%	49.1%
Education	Illiterate	15%	8.4%	7.3%
	Primary school	18%	12%	11.4%
	(Partial) middle school	14%	10.2%	10.5%
	Partial high school	7%	2.4%	1.7%
	High school diploma	22%	31%	31.9%
	Tertiary education	24%	36%	37.2%

Notes: The target is based on the official Iranian 2016 Census (SCI 2018) as presented in the technical reports of R-Research. The achieved shares of survey 1 are not significantly different to the target shares, according to a two-sided t-test which has a test-statistic of -0.09 with a p-value of 0.92. The achieved shares of survey 2 are also not significantly different to the target shares, according to a two-sided t-test which has a test-statistic of -0.086 with a p-value of 0.93. Finally, the two-sided t-test comparing both survey characteristics has a test-statistic of -0.0000 and a p-value of 1, suggesting that they are not significantly different from each other.

Table A3: Summary of responses to survey questions and used conflict data

No.	Variable	Survey 1	Survey 2	Total
1	*Life Satisfaction*	n = 1212	n = 1212	n = 2424
	0. Completely and rather dissatisfied	36.14%	40.92%	38.53%
	1. Completely and rather satisfied	63.86%	59.08%	61.47%
2	*Protests (anywhere in Iran)*	n = 1214	n = 1212	n = 2426
	0. No	100.00%	0.00%	50.04%
	1. Yes	0.00%	100.00%	49.96%
3	*Protests (in home city)*	n = 1214	n = 1212	n = 2426
	0. No	100.00%	44.47%	72.26%
	1. Yes	0.00%	55.53%	27.74%
4	*Number of protests (in home city)*	n = 1214	n = 1212	n = 2426
	Min.	0	0	0
	Max.	0	315	315
	Mean	0	43.88	21.92
5	*Protests (within 25 km radius)*	n = 1214	n = 1212	n = 2426
	0. No	0.00%	24.50%	37.72%
	1. Yes	0.00%	75.50%	62.28%
6	*Number of protests (within 25 km radius)*	n = 1214	n = 1212	n = 2426
	Min.	0	0	0
	Max.	0	345	345
	Mean	0	52.59	26.27
7	*Violent protests (in home city)*	n = 1214	n = 1212	n = 2426
	0. No	0.00%	46.95%	73.50%
	1. Yes	0.00%	53.03%	26.50%
8	*Peaceful protests (in home city)*	n = 1214	n = 1212	n = 2426
	0. No	0.00%	48.27%	74.14%
	1. Yes	0.00%	51.73%	25.85%
9	*Number of violent protests (in home city)*	n = 1214	n = 1212	n = 2426
	Min.	0	0	0
	Max.	0	108	108
	Mean	0	15.56	7.77
10	*Number of peaceful protests (in home city)*	n = 1214	n = 1212	n = 2426
	Min.	0	0	0
	Max.	0	207	207
	Mean	0	28.33	14.15
11	*Gender*	n = 1214	n = 1212	n = 2426
	0. Male	49.42%	50.91%	50.16%
	1. Female	50.58%	49.09%	49.84%
12	*Age*	n = 1211	n = 1208	n = 2419
	Min.	18	18	18
	Max.	65	65	65
	Mean	43.07	40.69	41.88
13	*Marital Status*	n = 1214	n = 1211	n = 2425
	0. Other	28.75%	26.59%	27.67%
	1. Married	71.25%	73.41%	72.33%
14	*Employment Status*	n = 1209	n = 1211	n = 2420
	0. Other	76.67%	75.89%	76.28%

	1. Unemployed	23.33%	24.11%	23.72%
15	*Perception of Corruption*	n = 1160	n = 1124	n = 2284
	0. No; small degree; average degree	48.28%	44.84%	46.58%
	1. Large degree; abundant	51.72%	55.16%	53.42%
16	*Importance of Religion*	n = 1211	n = 1200	n = 2411
	0. Not at all important; not very important	29.81%	29.75%	29.78%
	1. Very important; rather important	70.19%	70.25%	70.22%
17	*Educational Level*	n = 1214	n = 1212	n = 2426
	1. Illiterate	8.40%	7.34%	7.87%
	2. Primary Education	12.03%	11.39%	11.71%
	3. Secondary Education	43.57%	44.06%	43.82%
	4. Tertiary Education	36.00%	37.21%	36.60%
18	*Social Class*	n = 1211	n = 1203	n = 2414
	1. Lower class	10.49%	11.47%	10.98%
	2. Working class	26.26%	26.27%	26.26%
	3. Lower-middle class	46.16%	46.13%	46.15%
	4. Upper-middle class	16.85%	16.04%	16.45%
	5. Upper class	0.25%	0.08%	0.17%
19	*Feeling of Security*	n = 1212	n = 1211	n = 2423
	0. Not at all secure; not very secure	14.60%	16.68%	15.64%
	1. Quite secure; very secure	85.40%	83.32%	84.36%
20	*Support of Surveillance*	n = 1186	n = 1161	n = 2347
	0. Definitely & probably should not have the right to video surveillance in public	23.86%	29.72%	26.76%
	1. Definitely & probably should have the right to video surveillance in public	76.14%	70.28%	73.24%
21	Consumption of National TV	n = 1213	n = 1212	n = 2425
	0. Monthly, less than monthly, & never	21.85%	23.43%	22.64%
	1. Daily & weekly	78.15%	76.57%	77.36%
22	Consumption of International TV	n = 1214	n = 1208	n = 2422
	0. Monthly, less than monthly, & never	73.64%	69.37%	71.51%
	1. Daily & weekly	26.36%	30.63%	28.49%
23	Consumption of Internet	n = 1212	n = 1206	n = 2418
	0. Monthly, less than monthly, & never	32.10%	26.62%	29.36%
	1. Daily & weekly	67.90%	73.38%	70.64%
24	Consumption of Newspaper	n = 1213	n = 1212	n = 2425
	0. Monthly, less than monthly, & never	85.82%	90.51%	88.16%
	1. Daily & weekly	14.18%	9.49%	11.84%
25	Consumption of Radio	n = 1214	n = 1209	n = 2423
	0. Monthly, less than monthly, & never	75.04%	75.27%	75.15%
	1. Daily & weekly	24.96%	24.73%	24.85%

Table A4: Overview of used protest measures

Name	Description
Protest dummy (survey)	A dummy variable, which is 1 if the respondent is from the second survey and 0 otherwise.
Protest dummy (hometown)	A dummy variable, which is 1 if the respondent is from the second survey and protests took place in the hometown of the respondent and 0 otherwise.
Number of protests (hometown)	The number of protests which took place in the hometown of each respondent of the second survey.
Number of violent protests (hometown)	The number of violent protests which took place in the hometown of each respondent of the second survey.
Number of peaceful protests (hometown)	The number of peaceful protests which took place in the hometown of each respondent of the second survey.
Protest dummy (25 km radius)	A dummy variable, which is 1 if the respondent is from the second survey and protests took place within a radius of 25 km of the centroid of the hometown of the respondent and 0 otherwise.
Protest dummy (50 km radius)	A dummy variable, which is 1 if the respondent is from the second survey and protests took place within a radius of 50 km of the centroid of the hometown of the respondent and 0 otherwise.
Protest dummy (75 km radius)	A dummy variable, which is 1 if the respondent is from the second survey and protests took place within a radius of 75 km of the centroid of the hometown of the respondent and 0 otherwise.

Table A5: Zero first-stage test results (A5.1 to A5.3) and first-stage estimations (A5.4 to A5.5)

Dependent variables:	(A5.1) Life satisfaction	(A5.2) Life satisfaction	(A5.3) Life satisfaction	(A5.4) Number of Protests	(A5.5) Number of Protests
	Survey 1 Data	Survey 1 Data	Survey 1 Data	Full Sample	Survey 2 Data
Rainfall	0.0000	0.0001		-0.0018***	0.0001
	(0.11)	(0.58)		(-5.35)	(0.27)
Distance to Saqqez	0.0001**		0.0001**	-0.0001***	-0.0002***
	(2.13)		(2.20)	(-3.66)	(-6.53)
Female	0.0773***	0.0770***	0.0772***	-0.0269	-0.0562*
	(2.83)	(2.82)	(2.83)	(-1.46)	(-1.93)
Age	-0.0293***	-0.0306***	-0.0293***	0.0140***	0.0251***
	(-3.90)	(-4.07)	(-3.90)	(2.71)	(3.13)
Age²	0.0003***	0.0003***	0.0003***	-0.0002**	-0.0002**
	(3.72)	(3.88)	(3.72)	(-2.56)	(-2.33)
Married	0.1318***	0.1361***	0.1320***	-0.0301	-0.1215***
	(3.76)	(3.87)	(3.77)	(-1.26)	(-3.36)
Unemployed	-0.0861***	-0.0845***	-0.0858***	-0.0052	-0.0224
	(-2.65)	(-2.59)	(-2.64)	(-0.22)	(-0.64)
Corruption	-0.1424***	-0.1399***	-0.1426***	0.0382**	0.0472
	(-5.35)	(-5.25)	(-5.38)	(2.02)	(1.64)
Religion	0.1487***	0.1515***	0.1488***	-0.0190	-0.0725**
	(5.15)	(5.24)	(5.15)	(-0.93)	(-2.27)
Primary education	-0.0317	-0.0343	-0.0317	0.0366	0.0897
	(-0.52)	(-0.56)	(-0.52)	(0.84)	(1.17)
Secondary education	-0.1341**	-0.1372**	-0.1342**	0.0922**	0.1875***
	(-2.41)	(-2.46)	(-2.42)	(2.37)	(2.73)
Tertiary education	-0.1355**	-0.1355**	-0.1356**	0.1077***	0.2095***
	(-2.27)	(-2.25)	(-2.27)	(2.59)	(2.85)
Working class	0.1302**	0.1261**	0.1301**	0.0405	0.1003*
	(2.44)	(2.34)	(2.43)	(1.23)	(1.90)
Lower-middle class	0.1810***	0.1754***	0.1810***	0.0706**	0.1624***
	(3.51)	(3.36)	(3.50)	(2.21)	(3.13)
Upper and upper-middle class	0.3061***	0.2986***	0.3060***	0.0709*	0.1939***
	(5.44)	(5.27)	(5.44)	(1.92)	(3.30)
Observations	1150	1150	1150	2256	1106

Notes: z-statistics based on robust standard errors clustered on the city-level with 67 clusters are reported in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1

Table A6: Determinants of life satisfaction with different distances from protests, marginal effects of probit estimations

Dependent variable:	(A6.1)	(A6.2)	(A6.3)	(A6.4)	(A6.5)	(A6.6)	(A6.7)	(A6.8)	(A6.9)
Life satisfaction	25 km	25 km	25 km	50 km	50 km	50 km	75 km	75 km	75 km
	Full sample	Female	Male	Full sample	Female	Male	Full sample	Female	Male
Protests	-0.0391***	-0.0636***	-0.0111	-0.0298**	-0.0532***	-0.0016	-0.0292**	-0.0531***	-0.0000
	(-2.95)	(-3.47)	(-0.43)	(-2.18)	(-2.75)	(-0.06)	(-2.09)	(-2.84)	(-0.00)
Female	0.0386*			0.0390*			0.0390*		
	(1.75)			(1.77)			(1.77)		
Age	-0.0079	-0.0110	-0.0066	-0.0080	-0.0114	-0.0069	-0.0080	-0.0115	-0.0069
	(-1.41)	(-1.22)	(-0.74)	(-1.44)	(-1.25)	(-0.77)	(-1.44)	(-1.27)	(-0.77)
Age^2	0.0001	0.0001	0.0001	0.0001*	0.0001	0.0001	0.0001*	0.0001	0.0001
	(1.64)	(1.38)	(0.92)	(1.67)	(1.40)	(0.94)	(1.67)	(1.42)	(0.95)
Married	0.0537**	0.0677*	0.0461	0.0539**	0.0685*	0.0464	0.0543**	0.0694*	0.0464
	(2.10)	(1.73)	(1.30)	(2.12)	(1.74)	(1.30)	(2.13)	(1.76)	(1.31)
Unemployed	-0.0635***	-0.0437	-0.0842**	-0.0635***	-0.0438	-0.0844**	-0.0634***	-0.0444	-0.0844**
	(-2.67)	(-1.29)	(-2.55)	(-2.67)	(-1.30)	(-2.56)	(-2.66)	(-1.32)	(-2.56)
Corruption	-0.1570***	-0.1685***	-0.1464***	-0.1573***	-0.1679***	-0.1471***	-0.1576***	-0.1684***	-0.1473***
	(-8.53)	(-6.73)	(-5.47)	(-8.58)	(-6.70)	(-5.51)	(-8.59)	(-6.73)	(-5.51)
Religion	0.1609***	0.1574***	0.1585***	0.1613***	0.1583***	0.1581***	0.1613***	0.1589***	0.1580***
	(6.24)	(5.27)	(4.59)	(6.23)	(5.28)	(4.57)	(6.22)	(5.30)	(4.57)
Primary education	-0.1044***	-0.1365**	-0.0733	-0.1049***	-0.1355**	-0.0737	-0.1055***	-0.1345**	-0.0737
	(-2.69)	(-2.36)	(-1.21)	(-2.71)	(-2.35)	(-1.21)	(-2.73)	(-2.33)	(-1.21)
Secondary education	-0.1330***	-0.1582***	-0.0987*	-0.1340***	-0.1588***	-0.0984*	-0.1345***	-0.1586***	-0.0982*
	(-4.14)	(-3.43)	(-1.90)	(-4.14)	(-3.43)	(-1.88)	(-4.15)	(-3.42)	(-1.88)
Tertiary education	-0.1898***	-0.2267***	-0.1381**	-0.1904***	-0.2277***	-0.1365**	-0.1909***	-0.2271***	-0.1362**
	(-5.11)	(-4.11)	(-2.19)	(-5.11)	(-4.17)	(-2.17)	(-5.12)	(-4.16)	(-2.17)
Working class	0.1073**	0.1202**	0.0964	0.1057**	0.1151*	0.0963	0.1052**	0.1128*	0.0963
	(2.57)	(2.01)	(1.62)	(2.52)	(1.93)	(1.61)	(2.50)	(1.87)	(1.61)
Lower-middle class	0.1983***	0.2448***	0.1410***	0.1965***	0.2408***	0.1395***	0.1960***	0.2389***	0.1393***
	(5.69)	(4.86)	(3.00)	(5.62)	(4.77)	(2.96)	(5.57)	(4.69)	(2.95)
Upper and upper-middle class	0.3999***	0.4024***	0.3836***	0.3979***	0.3988***	0.3818***	0.3978***	0.3976***	0.3816***
	(9.82)	(6.72)	(7.76)	(9.73)	(6.60)	(7.76)	(9.68)	(6.55)	(7.74)
Observations	2256	1141	1115	2256	1141	1115	2256	1141	1115

Notes: z-statistics based on robust standard errors clustered on the city-level with 67 clusters are reported in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Table A7: Determinants of life satisfaction using different location subsamples, marginal effects of probit estimations

Dependent variable: Life satisfaction	(A7.1) Survey Dummy, Full Sample	(A7.2) Survey Dummy, Urban	(A7.3) Survey Dummy, Rural	(A7.4) Home Dummy, Full Sample	(A7.5) Home Dummy, Urban	(A7.6) Home Dummy, Rural
Protests	-0.0358**	-0.0353**	-0.0389	-0.0382**	-0.0339**	0.0424*
	(-2.45)	(-2.00)	(-1.50)	(-2.49)	(-2.08)	(1.69)
Female	0.0391*	0.0344	0.0723**	0.0381*	0.0336	0.0688**
	(1.78)	(1.22)	(2.05)	(1.73)	(1.18)	(2.03)
Age	-0.0081	-0.0128*	0.0066	-0.0075	-0.0126*	0.0071
	(-1.45)	(-1.94)	(0.52)	(-1.35)	(-1.90)	(0.56)
Age²	0.0001*	0.0002**	-0.0001	0.0001	0.0002**	-0.0001
	(1.67)	(2.19)	(-0.39)	(1.60)	(2.15)	(-0.41)
Married	0.0551**	0.0700**	-0.0131	0.0508**	0.0675**	-0.0211
	(2.16)	(2.30)	(-0.24)	(1.98)	(2.23)	(-0.39)
Unemployed	-0.0628***	-0.0479	-0.1135***	-0.0633***	-0.0490*	-0.1120***
	(-2.63)	(-1.61)	(-2.89)	(-2.65)	(-1.65)	(-2.86)
Corruption	-0.1575***	-0.1457***	-0.1861***	-0.1570***	-0.1446***	-0.1892***
	(-8.56)	(-7.25)	(-4.59)	(-8.55)	(-7.16)	(-4.61)
Religion	0.1617***	0.1738***	0.0968***	0.1601***	0.1733***	0.0966***
	(6.22)	(5.93)	(2.59)	(6.23)	(5.96)	(2.61)
Primary education	-0.1056***	-0.0924*	-0.1137	-0.1037***	-0.0895*	-0.1136
	(-2.74)	(-1.85)	(-1.58)	(-2.67)	(-1.77)	(-1.58)
Secondary education	-0.1349***	-0.1013**	-0.1708***	-0.1315***	-0.0988**	-0.1705***
	(-4.16)	(-2.17)	(-3.36)	(-4.06)	(-2.10)	(-3.47)
Tertiary education	-0.1904***	-0.1685***	-0.1582*	-0.1876***	-0.1671***	-0.1609**
	(-5.10)	(-3.35)	(-1.96)	(-5.00)	(-3.29)	(-1.99)
Working class	0.1041**	0.1569***	0.0526	0.1069**	0.1571***	0.0587
	(2.49)	(2.98)	(0.80)	(2.56)	(2.98)	(0.90)
Lower-middle class	0.1949***	0.2520***	0.1130**	0.1990***	0.2522***	0.1188**
	(5.57)	(5.58)	(1.99)	(5.69)	(5.57)	(2.12)
Upper and upper-middle class	0.3957***	0.4528***	0.3448***	0.4008***	0.4542***	0.3513***
	(9.69)	(8.63)	(5.94)	(9.85)	(8.62)	(6.21)
Observations	2256	1712	544	2256	1712	544

Notes: z-statistics based on robust standard errors clustered on the city-level with 67 clusters are reported in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Table A8: Number of protests in respondents' cities

Full sample	Min	Max	Mean
Number of protests	1	315	77.4
Number of violent protests	1	108	28.7
Number of peaceful protests	1	207	53.7
Female subsample	Min	Max	Mean
Number of protests	1	315	79.7
Number of violent protests	1	108	29.2
Number of peaceful protests	1	207	54.6
Male subsample	Min	Max	Mean
Number of protests	1	315	75.5
Number of violent protests	1	108	28.3
Number of peaceful protests	1	207	52.9

Table A9: Different paths of mediation analysis, marginal effects of probit estimations

Dependent variables:	(A9.1) Security	(A9.2) Life satisfaction	(A9.3) Life satisfaction
Protests	-0.0727***	-0.0371**	-0.0213
	(-4.42)	(-2.38)	(-1.37)
Security			0.1855***
			(9.11)
Female	0.0343**	0.0376*	0.0308
	(2.21)	(1.70)	(1.47)
Age	-0.0050	-0.0075	-0.0065
	(-0.94)	(-1.34)	(-1.13)
Age²	0.0001	0.0001	0.0001
	(1.06)	(1.60)	(1.37)
Married	0.0098	0.0508**	0.0497*
	(0.61)	(1.98)	(1.92)
Unemployed	-0.0048	-0.0632***	-0.0619***
	(-0.25)	(-2.65)	(-2.73)
Corruption	-0.0893***	-0.1563***	-0.1393***
	(-6.62)	(-8.40)	(-7.63)
Religion	0.1300***	0.1604***	0.1315***
	(6.37)	(6.25)	(5.36)
Primary education	-0.0496	-0.1044***	-0.0950**
	(-1.51)	(-2.66)	(-2.38)
Secondary education	-0.0671**	-0.1312***	-0.1179***
	(-2.34)	(-4.05)	(-3.63)
Tertiary education	-0.0704**	-0.1877***	-0.1729***
	(-2.34)	(-4.99)	(-4.53)
Working class	0.0235	0.1067**	0.1010**
	(0.90)	(2.55)	(2.43)
Lower-middle class	0.0343	0.1990***	0.1911***
	(1.28)	(5.68)	(5.54)
Upper and upper-middle class	0.0088	0.4008***	0.3992***
	(0.29)	(9.85)	(10.28)
Observations	2253	2253	2253

Notes: z-statistics based on robust standard errors clustered on the city-level with 67 clusters are reported in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.