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The Effect of the "Woman Life Freedom" Protests on Life Satisfaction in Iran: Evidence from Survey Data*

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Abstract

This study examines the causal effect of the "Woman, Life, Freedom" protests in Iran during the last quarter of 2022 on individual life satisfaction. To evaluate the impact, we use two original representative surveys conducted before and after the protests in Iran in 2022. The repeated cross-sectional dataset was generated with the same sampling approach in both surveys, aimed at representativeness. Our results, based on probit regressions and instrumental variable approach for a sample of 2,256 individuals, shows that the violent protest environment had a significant and negative effect on life satisfaction in Iran. To determine the exposure of the respondents to protests, this study uses different measures based on the distance of individual respondents from the protests. Overall, this protest environment decreased the probability of life satisfaction by 3.6 percentage points. These results are robust when including other determinants of individual life satisfaction. Moreover, we find significant heterogeneity among the respondents with respect to their gender, where the largest negative impact of the protests on life satisfaction is observed among women. This negative impact is larger in magnitude than that of being unemployed. Another finding is the heterogenous effect depending on media consumption which shows that consumers of international TV report the largest decrease in life satisfaction. The mechanism was also evaluated through mediation analysis which reveals feelings of security and support of surveillance as important mediators of the total effect.

JEL codes:
D74; F52; H56; I31; N15

Keywords:
Protest; Violence; Life Satisfaction; Well-Being; Woman Life Freedom; Survey; Iran

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1. Introduction

During the final months of 2022, countrywide protests in Iran under the banner "Woman, Life, Freedom" attracted international attention. The protests originated in the western Iranian city of Saqqez following the death of Jina Mahsa Amini on 16 September 2022 while in custody of the morality police in Tehran. They quickly spread across Iran, garnering significant international media coverage, which distinguished them from earlier protests in the country. The protesters' demands ranged from increased freedoms to an overthrow of the state. The level of applied violence from both the protesters and government security forces was also noteworthy. During the first 82 days of protests, 481 people were killed, which included 61 security forces affiliated with the Iranian government. In addition, 18,242 individuals were detained by security forces (HRANA 2022).

Our study does not intend to investigate the socio-economic and institutional drivers of the 2022 protests which has been done by studies like Asadzade (2024), but rather focuses on examining the effects of these protests on the life satisfaction of individuals. Specifically, we aim to understand how the direct and indirect experiences of violence and the volatile political situation at the end of 2022 have affected the life satisfaction of the people in Iran. Furthermore, we seek to identify which segments of society were mentally more vulnerable and impacted by the political turmoil. We assess the robustness of the influence of protest events on individual life satisfaction, while controlling for other socio-economic characteristics, and identifying mechanisms in the relationship between protests and life satisfaction. This study also uses an instrumental variable approach to address possible endogeneity. Moreover, this study analyzes the role of different media consumption for the final effect of protests on life satisfaction.

This study benefits from two contracted original surveys conducted in Iran. The first survey was conducted in January-February 2022, when there were no specific political or economic shocks, and the second in November 2022, following two months of countrywide protests. Both surveys included questions regarding life satisfaction and the different socio-economic characteristics of the respondents. Our main results show that the protest environment significantly reduced life satisfaction in Iran. This effect is even stronger when only considering the female subsample of respondents. When using subsamples of different media consumption, the results suggest that the strongest negative effect is among respondents who regularly watch international TV. Additionally, we find a different effect of violent and peaceful protests, and we show that feeling of security and support of surveillance are important mediators.

To the best of our knowledge, this is the first empirical study which examines the effects of the "Woman, Life, Freedom" protests in Iran at the end of 2022 on individual life satisfaction using representative original surveys. Further contributions of this study are that it identifies an important heterogeneity depending on gender and media consumption, and it empirically examines the mechanisms of how protests affect life satisfaction.

The remainder of the paper is structured in the following way: Section 2 gives an overview of the relevant literature and Section 3 presents the data and methodology. In Section 4, the results are presented and discussed, and Section 5 concludes the paper.

2. Literature Review

Earlier studies have examined the effects of various types of violent events on the subjective well-being of individuals which can be measured using different approaches, including survey-based individual life satisfaction, happiness, and other forms of self-reported well-being.

Shemyakina and Plagnol (2013) used survey data collected after the 1992–1995 Bosnian War to examine how individual life satisfaction changed after this event. Regional and individual variation in exposure to conflict was used to identify the effect. They show that individual war-related trauma had a negative and significant influence on life satisfaction, and those who lost their residence showed a stronger decline in life satisfaction. Kijewski (2020) studied the long-term consequences of World War II (WWII) on individual life satisfaction across generations. Her findings indicate that even six decades after the end of WWII, war experiences continue to be related to lower levels of life satisfaction among the war generation and subsequent generations. The long-term effects of WWII on individual life satisfaction with family victimization during the war was also examined by Djankov et al. (2016) in their sample of Eastern European countries in 2010 and found no significant effect on life satisfaction.

The war between Israel and Lebanon in 2006 was also a focus of a study by Van Praag et al. (2010). The event was a 34-day military conflict in Lebanon, northern Israel and the Golan Heights. Their results show that when surveyed either during or after the conflict, Jews and Arabs residing in Israel did not exhibit significantly different levels of life satisfaction compared to those who were asked about their life satisfaction prior to the war. It should be noted that the war resulted in many more casualties in Lebanon (estimated 1100 deaths) compared to an estimated 60 deaths in Israel (Human Rights Watch, 2007). Another line of literature has looked at the effect of terrorism on life satisfaction, including estimations of individual's willingness to pay to be free from terrorism. Frey et al. (2009) used individual survey data and examined the mental costs of terrorism for France and the British Isles, finding

a large negative effect of terrorism on life satisfaction. A significant negative effect of terrorism on life satisfaction is also found Farzanegan et al. (2017), using panel data covering 81 countries from 1994 to 2009.

In addition to studies on life satisfaction, there are also similar findings when using self-reported happiness as the outcome variable. Welsch (2008) shows with cross-national regressions that the number of conflict victims has a significant effect on happiness, directly via health and psychological channels and indirectly via decline in income. The Bosnian War is another case study of a civil conflict which eventually became international. Focusing on the case of war in Ukraine, Coupe and Obrizan (2016) show that the average level of happiness in regions directly affected by war has declined significantly. The size of the decline in their study is comparable to the decrease of happiness following an individual's shift from a high- to a low-income class. Their study also shows that the decline in happiness was not observed in other regions that were far away from the war.

There are also studies which have examined the effects of less violent events of unrest, such as anti-government demonstrations, general strikes, and riots, all of which can result in larger costly instabilities such as revolution or civil war (Ishak and Farzanegan 2022), thus affecting subjective well-being. Protests are explained as the most common form of modern political conflict (Liu, Modrek, and Sieverding 2019). Experiencing such political conflicts can still have a significant influence on mental health, especially among young adults. The impressionable years hypothesis explains that key attitudes, beliefs, and values are shaped during a period of great mental plasticity in early adulthood (Farzanegan and Gholipour 2021).

Liu et al. (2019) examine the political turmoil under the Arab Spring in Egypt and its effects on the mental health of Egyptians. They use a nationally representative panel of youth in the 2009 (pre-Arab spring) and 2013/2014 (post-Arab spring) iterations of the Survey of Young People in Egypt (SYPE). Their results show that being exposed to protests resulted in heightened perceptions of uncertainty regarding the future. Among young individuals who had experienced protests, young men were slightly more inclined to report good overall health, but they also encountered significant deterioration in mental health compared to young women who had been exposed to protests. Distinctions were also observed in the perceptions of uncertainty and mental health based on individual and familial participation in protest events.

Cheung (2022) shows how participation in the Occupy Movement in Hong Kong reduced the life satisfaction of its participants. He uses conflict theory which assumes that social conflict reduces life satisfaction because conflict is associated with many phenomena that reduce life

satisfaction, such as violence, competition, discord, fighting, polarization, and hostility, among others. Lau et al. (2017) provide further empirical evidence on the negative effect of the Occupy Movement on mental health in Hong Kong.

Another path of literature shows how participation in political protests and other forms of political participation can increase social well-being (Klar and Kasser 2009; Welzel 2013; Ni et al. 2020) through different channels. Klar and Kasser (2009) use survey data from the United States and show that several indicators of activism were positively associated with different measures of social well-being. In addition, Ni et al. (2020) reviewed studies collective actions and mental health and found that collective actions may reduce depression and suicide, possibly due to a collective cathartic experience and greater social cohesion within subpopulations. Welzel (2013) discusses theoretically and empirically how emancipative values encourage social movement activity and enhance environmental activism which can elevate society's well-being through the feeling of empowerment.

Overall, previous studies have shown different possible mechanisms for how violent events and peaceful protests can affect subjective well-being. On the one side, violent events can reduce subjective well-being through a reduction in physical health, mental health, and household income. On the other side, protests can negatively or positively affect subjective well-being, either through the experience of violence and emotional stress, or through the cathartic experience and the feeling of empowerment. Other possible channels that will be explored in our study are based on the following findings. Grinshteyn et al. (2016) show that different measures of violence and social disorder reduce the feeling of safety in the neighborhood, which might translate into a reduction in life satisfaction. The relationship between the feeling of safety and life satisfaction has been addressed in several studies. Brenig and Proeger (2018) use European Social Survey data from 2002 to 2012 and show that fear of crime and becoming a crime victim significantly reduce life satisfaction across Europe. Further case studies from Jamaica and South Africa based on survey data support these findings (Spencer and Liu 2019; Cordeiro, Kwenda, and Ntuli 2020).

The role of preferences for individual freedoms as a possible channel will also be further explored in our study. The preferences for individual freedoms can be measured through different survey questions, for example questions about the support of or opposition to video surveillance. Repressive actions by government forces can decrease the support for the government and government actions to monitor citizens, for example through video surveillance technologies, and can even motivate citizens to anti-government violence

(Bartusevičius, van Leeuwen, and Petersen 2023) or to join more demonstrations (Aytaç, Schiumerini, and Stokes 2018; Bell and Murdie 2018). The reduction in support of video surveillance will then reduce individual life satisfaction. There are already studies that link political values with life satisfaction, for example Newman et al. (2019) show that social conservatism is associated with greater life satisfaction. The support of surveillance is usually associated with persons who support conservative values and a strong state, preferring security over individual freedoms.

Additionally, the estimations in this study include several control variables which have been shown in the literature to be important drivers of life satisfaction. Among these are gender (Ngoo, Tan, and Tey 2021), age and a squared term of age (Bartram 2021), marital status (Mikucka 2016), employment status (Georgellis et al. 2022), perception of corruption (Ciziceno and Travaglino 2019), importance of religion (Yaden et al. 2022), educational levels (Powdthavee, Lekfuangfu, and Wooden 2015), and self-perceived social classes (Kaiser and Trinh 2021; Haddad et al. 2022).

There are also studies on the "Woman, Life, Freedom" protests that happened 2022 in Iran. They highlight the role of women and female empowerment during these protests (Afary and Anderson 2023; Kashani-Sabet 2023), and discuss the overall context of these events. Asadzade (2024) studies why the protests occurred in certain locations in Tehran, and he found that protests are more likely to emerge and persist in neighborhoods with a higher percentage of educated citizens, closer proximity to university campuses and convenient access to metro stations.

We contribute to the literature by focusing on the "Woman, Life, Freedom" protest which was "the longest running anti-government protest in Iran since the 1979 Islamic revolution" (Ghobadi 2022). This makes it also an important case study, as Iran is one of the most populous countries in the region, and the political stability of Iran might also affect neighboring countries. Moreover, the results also highlight the gender aspects of the protests, which resulted in stronger reduction of female life satisfaction. The study also adds new results to the literature which show the mediating role of feeling of security and opposition to surveillance.

3. Data and Methodology

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, the organization responsible for executing Wave 7 of the World Values Survey in Iran. 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 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).

The completed interviews in each region have a similar share to the population living in these regions. 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 characteristics of respondents are comparable with the general population of Iran. Table 1 presents the variables used in the analysis, which includes the responses to the questions of both surveys and the used conflict data (ACLED 2023).

Table 1: 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%

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 1 already provide a first glimpse of the difference in life satisfaction between the two surveys. The share of respondents who are completely and rather satisfied has decreased by 4.78 percentage points.

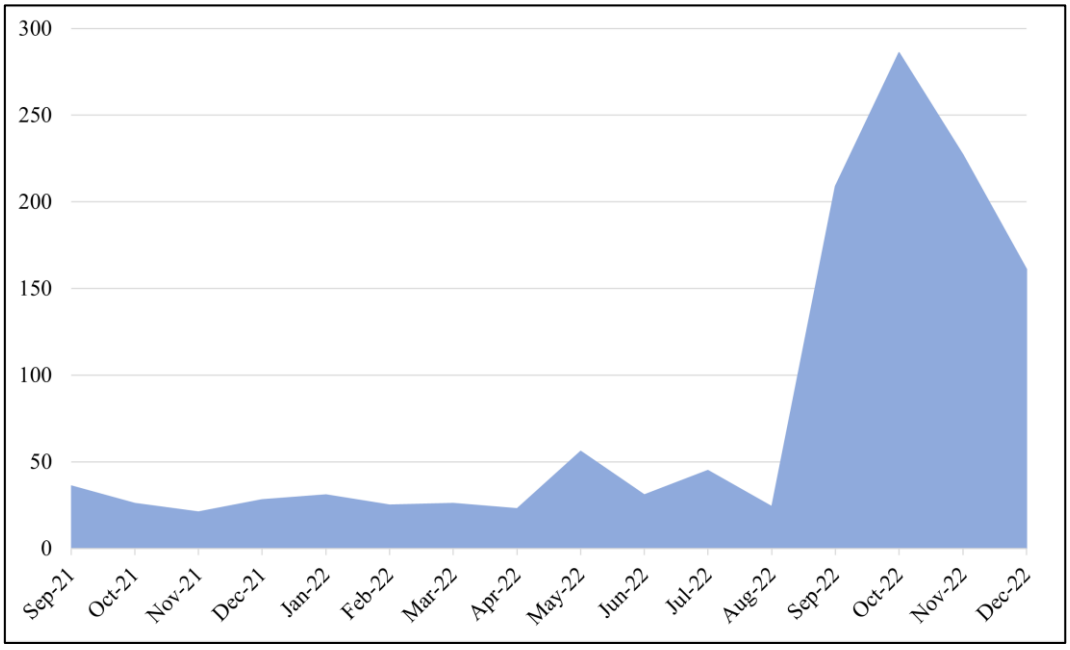
As it is difficult to objectively measure happiness and life satisfaction, it is established in the literature to use self-reported happiness and life satisfaction gathered through surveys. Kahneman and Krueger (2006) show that these self-reported measures are valid measures, because they correlate with 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 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). Thus, it considers all respondents in the second survey as 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.

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 A3 in the Appendix gives an overview of all used measures.

3.2. Estimation Methodology

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 are assuming that participants of the second survey are the treatment group and the participants of the first survey are the control group. The treatment is the protest environment which is measured by the different protest measures which 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. There were no questions in the survey included that asked about participation in the protests.

3.2.1. Hypotheses and Specification

Based on the previous discussion, we have defined several hypotheses:

Hypothesis 1: The protest environment has decreased life satisfaction in Iran.

The assumption of this hypothesis is that protests affect life satisfaction, which has been shown in previous studies (Cheung 2022). Possible mechanisms will be addressed in hypotheses 4 and 5.

Hypothesis 2: The negative effect of the protest environment on life satisfaction is stronger among female respondents.

As the protests were highly related to female rights and demands of women (Afary and Anderson 2023; Kashani-Sabet 2023), the assumption 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 reflects 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.

Hypothesis 3: The consumption of media moderates the relationship between the protest environment and life satisfaction. This means that the final effect of the protest environment on life satisfaction depends on the type of consumed media.

The rationale behind this question is that state-controlled media have an interest in a de-escalation of the situation and often try to present control of the situation and thus reflect political stability. This suggests that national Iranian media shows less violence, which might help to 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 show more violence and use pictures that spark 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).

Hypothesis 4: The negative effect of the protest environment on life satisfaction is driven by violent protests.

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. Previous studies have shown how violent events such as war, conflict, and terrorism can affect life satisfaction (Frey, Luechinger, and Stutzer 2009; Shemyakina and Plagnol 2013; Farzanegan, Krieger, and Meierrieks 2017; Kijewski 2020).

Hypothesis 5: The feeling of security negatively mediates the relationship between the protest environment and life satisfaction. This means that the protest environment reduces the feeling of security which furthermore reduces life satisfaction.

With this hypothesis, the mechanism of how the protests affect life satisfaction will be explored. The assumption is 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 the feeling of insecurity reduces life satisfaction. The negative effect of crime on subjective life satisfaction is plausible because being surrounded by criminal activity reduces the quality of life. Therefore, the hypothesis about the mediating effect means that the positive relationship between the feeling of security and life satisfaction will be affected by the protest environment.

Hypothesis 6: The support of surveillance negatively mediates the relationship between the protest environment and life satisfaction. This means that the protest environment reduces the support of surveillance which furthermore reduces life satisfaction.

With this hypothesis, an additional mechanism of how the protests affect life satisfaction will be explored. The assumption is that the support of surveillance is reduced due state repression, including the death of Jina Mahsa Amini, who was arrested for opposing the mandatory hijab rules. The opposition to the mandatory hijab rules was also reflected in the actions of women during the protests, who lifted their hijabs. Therefore, the opposition to surveillance can be interpreted as a demand for more individual freedoms and less interference by the state in the private sphere of citizens, which also includes mandatory hijab rules. Previous studies have shown that repressive actions by government forces can lead to anti-government behavior (Aytaç, Schiumerini, and Stokes 2018; Bartusevičius, van Leeuwen, and Petersen 2023; Bell and Murdie 2018), for example rejection of video surveillance technologies. This helps to explain why the WLF protest environment has reduced the support of surveillance. Through this channel, the reduction in support of video surveillance will then reduce life satisfaction. Newman et al. (2019) show that social conservatism, which usually includes preferences of security over individual freedoms, is associated with greater life satisfaction. Based on this, the assumption is that support of surveillance and life satisfaction are positively related. Thus, the hypothesis about the mediating effect means that the positive relationship between the support of surveillance and life satisfaction will be affected by the protest environment.

To examine these hypotheses, probit regressions are employed as the estimation methodology. The following specification is used to test the first four hypotheses:

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

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. Based on previous studies, we expect positive relationships of being married, being employed, being religious, and being part of a higher social class with life satisfaction. The perception of corruption is expected to have a negative relationship with life satisfaction. The remaining variables, which include gender, age, and educational levels, face mixed results when consulting the literature. The coefficient γ_1 addresses Hypothesis 1. Hypothesis 2 is tested by restricting the sample to only female respondents, and Hypothesis 3 is tested by splitting the sample depending on the respondent's type of media consumption. By replacing the protest dummy with the number of violent and peaceful protests, Hypothesis 4 is tested.

3.2.2. Instrumental Variable

To address the possible reverse feedback of the outcome variable, an instrumental variable approach is used, in which precipitation is used as an instrument for the number of protests. Precipitation is measured by the average daily precipitation in millimeters during the time period of the utilized protest data (16 September 2022 to 8 November 2022) for respondents of the second survey, and the average of the same number of days before the start of the first survey for respondents of the first survey, using version 6 of Global Precipitation Measurement (GPM) data from Goddard Earth Sciences Data and Information Services Center (Huffman et al. 2019). The precipitation data are aggregated on the county level to match the values with the respondents' locations. As another instrument, the distance of the respondents to the city of Saqqez in kilometers is used, which is Jina Mahsa Amini's hometown, 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 A4 in the Appendix presents the results of the zero first-stage tests. Column 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, because the correlation between the number of protests and the rainfall measure is -0.09 using Pearson's r, and the weak instruments test provides an F-statistic of 46.03 which provides evidence to reject the null hypothesis of having a weak instrument. The rationale behind the second instrument is that the distance to Saqqez is correlated with the number of protests, but it cannot be directly affected by life satisfaction, thus it can be considered exogenous and relevant. Moreover, the correlation between the number of protests and the distance is -0.12 using Pearson's r, and the weak instruments test provides an F-statistic of 124.77 which also provides evidence to reject the null hypothesis of having a weak instrument.

Table A4 in the Appendix presents also 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 are still be satisfied, and 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 which addresses the independence assumption. It shows Wooldridge's test statistic of 2.52 with a p-value of 0.11 which provides evidence that the independence criterion is satisfied.

The instrumental variable approach, is operationalized in the following way:

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

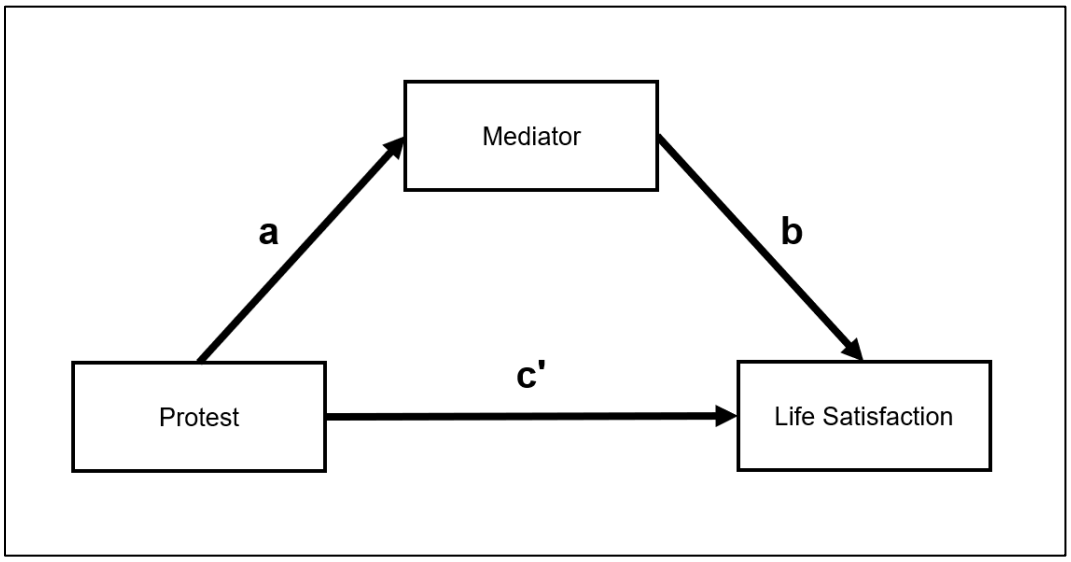
The first stage presented in equation (2) uses the endogenous explanatory variable from equation (1), which is the protest measure, as dependent variable. In the second stage, the predicted values of the protest measure will be included in the original model.

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

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), which is testing Hypothesis 5 and Hypothesis 6. 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 feeling of security or support of surveillance, and path b is the effect of the mediator on life satisfaction. These two paths reflect the indirect effect and 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 in this study the feeling of security and the support of surveillance. 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 γ1 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 (α1β1 + β2). The direct effect is reflected by the coefficient β2 in equation (5), and the indirect effect is calculated by multiplying the coefficient α1 with the coefficient β1. With these values, several ratios can be calculated, for example the proportion of the total effect that is mediated (α1β1 / γ1), the ratio of indirect to direct effect (α1β1 / β2), and the ratio of total to direct effect (γ1 / β2). In the probit estimations, the coefficient γ1 must be replaced by α1β1 + β2 in the calculations of ratios.

4. Results and Discussion

The results of the empirical investigation using probit regressions are presented in Table 2 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 A5 in the Appendix. The second column of Table 2 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 2: 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, and being unemployed, 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 the 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 A5 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, and 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 A6) which shows 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 3 address Hypothesis 4, 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 1. The subsamples are created based on respondents who consume these types of media daily and weekly. Table 3 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 4.

Table 3: 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%) can be 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 4 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 the 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 4: 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 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 of 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, and 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 behavior of protestors 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; Klar and Kasser 2009; Welzel 2013; Cheung 2022). One possible explanation is that the participation in protests can facilitate the 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, for example the right to associate, exist which will increase the life satisfaction of the whole population, and 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 this can be explained by collective actions serving as a cathartic experience when people collectively express grievances. 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 the 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 4 also uses an instrumental variable (IV) approach in the third column which estimates the impact of protests on life satisfaction. Protests are measured as the number of protests within the city of the respondent, and the instruments are the average daily precipitation and the distance from the city of Saqqez. According to the results 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 5. 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 4 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 2 and 3 using dummy variables) and the number of protests and type of protests (as presented in Table 4) matter.

Table 5: 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

4.3. The Mediating Role of Feeling of Security and Support of Surveillance

Mediation analysis is utilized to explore the mechanism of how protests affect life satisfaction. The results presented in Table 6 show that the feeling of security significantly mediates the negative effect of protests on life satisfaction. There is a similar finding for the support of surveillance.

Table 6: Direct, indirect, and total effects of protests on life satisfaction using mediation analysis

	Full sample (n=2207)	Female sample (n=1116)
Indirect effect of feeling of security	-0.0072	-0.0019**
Indirect effect of support of surveillance	-0.0094**	-0.0283*
Total indirect effect	-0.0166**	-0.0302*
Direct effect of protests	-0.0374	-0.0615
Sum of indirect and direct effects	-0.0540*	-0.0917**
Proportion of total effect mediated	0.3076	0.3293
Ratio of indirect to direct effect	0.4443	0.4910
Ratio of total to direct effect	1.4443	1.4910

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 are reported in Table A7 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 1, 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 feeling 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 mediating variable *Support of Surveillance* is a dummy variable that is 1 for respondents who think that the government "definitely should have the right" or "probably should have the right" to keep people under video surveillance in public areas, and 0 otherwise. This indicator was re-scaled from a four-point Likert scale. As presented in Table 1, 73.24% of respondents in the total sample support surveillance, and the share of respondents who support surveillance has decreased from the first to the second survey. The reduction of the support of surveillance can be interpreted as a demand for more individual freedoms and less government intervention in private matters, which is a plausible mediator, especially for the female subsample as a demand for freedom is included in the slogan of the protest movement, and the mandatory hijab rules affect women's self-determination.

The results of the mediation analysis using probit estimations, presented in Table 6, suggest that 30.7% of the total effect of protests on life satisfaction can be explained by the two mediators. A comparison with the female subsample reveals that the support of surveillance has a larger share in the total indirect effect when only considering female respondents. Overall, the results of the mediation analysis suggest that the violent protest environment did affect life satisfaction in Iran through at least two channels, namely the feeling of security and the support of surveillance.

The channel of feeling of security is also connected to the violent environment surrounding the protests, because of the repression of protests by government forces and the violence of protestors against government forces and infrastructure. Therefore, it will be 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) and violent protests might reduce the societal support of protestors (Simpson, Willer, and Feinberg 2018), which means that both parties might not achieve 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. As we have the two parties (government and protestors), we would expect that violent protest will make reforms less likely and will be destructive for cohesion of society.

The channel of support of surveillance sheds more light on the legitimacy of government actions to monitor citizens with the purpose of public order. The results show a decline in support of video surveillance due to the WLF protests, which also reflects a loss of trust in the security apparatus and a reduction in conservative values such as the support of a strong state. A change in values can affect life satisfaction in different ways. There are three possible explanations for this effect. First, the process of change of values can be the reason, because a disruption of the values and beliefs or the worldview can affect mental health (Biruski, Ajdukovic, and Stanic 2014). Second, the values themselves can change from conservative values such as the support of a strong state to a support of more individual freedoms and less interference of the government in the private sphere, and certain political values can be associated with higher levels of life satisfaction (Newman et al. 2019), and values can also affect psychological stress (Luo and Willroth 2024). Third, the loss of trust in the security apparatus can reduce life satisfaction. Brülisauer et al. (2022) provide empirical evidence on the positive relationship between political trust and life satisfaction which supports the argument because a decrease of trust in political institutions is associated with a decrease of life satisfaction.

5. Conclusion

Overall, the results reveal that the protest environment reduces life satisfaction, which is especially the case for female respondents during the "Woman, Life, Freedom" protests. The protest dummy variable shows that respondents have a 3.6 pp lower probability of being satisfied with life, and female respondents have a 5.6 pp lower probability of being satisfied with life. When using an instrumental variable approach, the statistically significant negative effect of protests on life satisfaction is supported.

When taking into account the intensity of protests, in terms of quantity and quality, we show that violence (and not the act of the protest itself) is responsible for the decrease in life satisfaction, which is in line 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). This is further investigated using mediation analysis, which reveals that a feeling of security and support of surveillance are important mechanisms that can explain how protests can decrease life satisfaction.

The findings additionally highlight the negative role of the violent protest environment for life satisfaction, which is also connected to the two mediators, which suggests that it will be important to reduce violence against protestors and security forces during protests. This also

has additional benefits for the protestors and the government to achieve their goals, because violent actions during protests can de-legitimatize either side of protests and can reduce compromises in a political conflict (Bell and Murdie 2018; Canetti et al. 2017; Simpson, Willer, and Feinberg 2018)

To achieve the reduction of violence during protests, there needs to be a legal framework that allows for peaceful protests and the prosecution of violent protestors. This will prevent the incitement of violence by those protesting. On the other hand, there also needs to be training in de-escalation tactics and the recruitment of trained security personnel to prevent violence from within the government's security forces. If violent events occur, it will be important to discuss and prosecute them in a transparent manner to avoid further escalating tensions.

As our results also show that peaceful protests can increase life satisfaction, this can also be a stabilizing factor for the country, if there is a clear legal framework for peaceful protests. If people can openly show their grievances, it might also be less likely that they will join violent groups, and it can serve as a collective cathartic experience (Ni et al. 2020) which can create the feeling of greater social cohesion which, furthermore, can increase life satisfaction. Thus, fostering a culture of peaceful dialogue and accountability is essential for the sustainable development and harmony of the nation.

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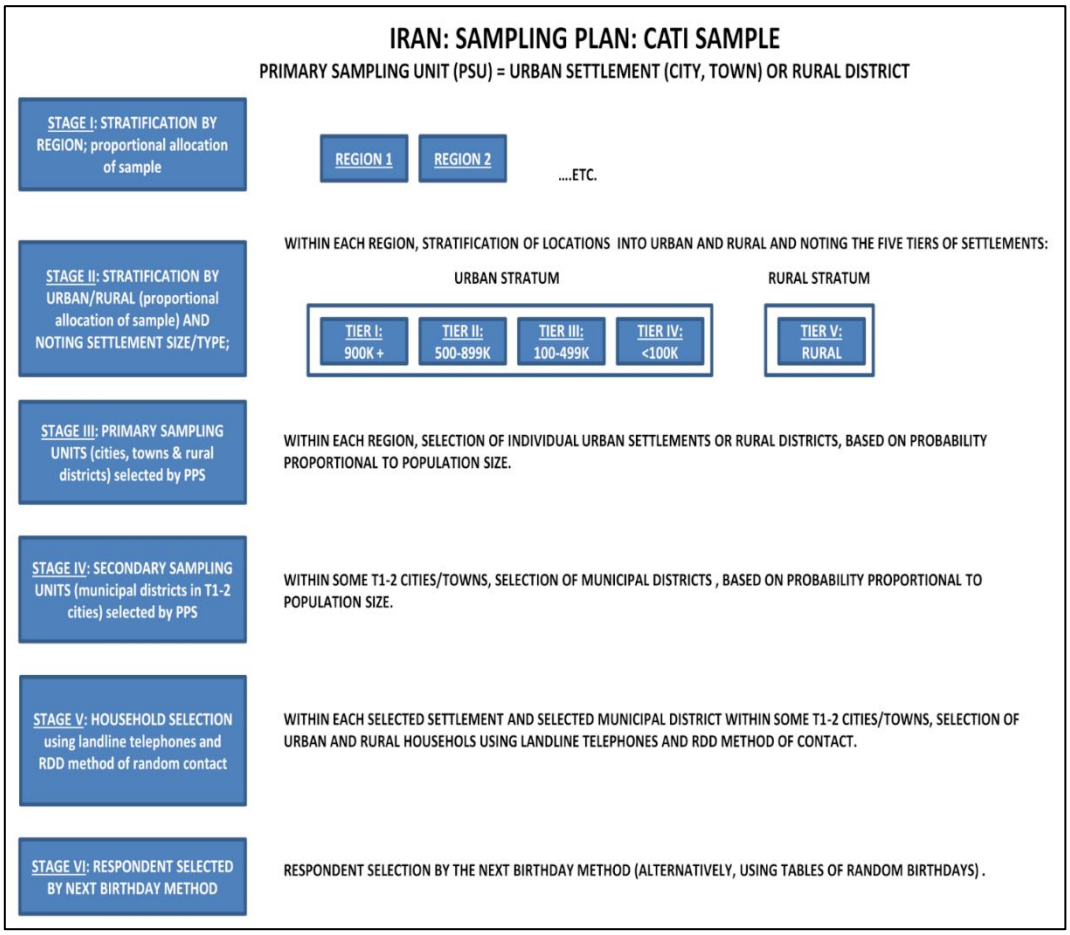
Appendix

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



Source: Technical Report of R-Research

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.

Table A3: 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 A4: Zero first-stage test results

Dependent variable: Life satisfaction	(A3.1)	(A3.2)	(A3.3)
Rainfall	0.0000	0.0001	
	(0.11)	(0.58)	
Distance to Saqqez	0.0001**		0.0001**
	(2.13)		(2.20)
Female	0.0773***	0.0770***	0.0772***
	(2.83)	(2.82)	(2.83)
Age	-0.0293***	-0.0306***	-0.0293***
	(-3.90)	(-4.07)	(-3.90)
Age²	0.0003***	0.0003***	0.0003***
	(3.72)	(3.88)	(3.72)
Married	0.1318***	0.1361***	0.1320***
	(3.76)	(3.87)	(3.77)
Unemployed	-0.0861***	-0.0845***	-0.0858***
	(-2.65)	(-2.59)	(-2.64)
Corruption	-0.1424***	-0.1399***	-0.1426***
	(-5.35)	(-5.25)	(-5.38)
Religion	0.1487***	0.1515***	0.1488***
	(5.15)	(5.24)	(5.15)
Primary education	-0.0317	-0.0343	-0.0317
	(-0.52)	(-0.56)	(-0.52)
Secondary education	-0.1341**	-0.1372**	-0.1342**
	(-2.41)	(-2.46)	(-2.42)
Tertiary education	-0.1355**	-0.1355**	-0.1356**
	(-2.27)	(-2.25)	(-2.27)
Working class	0.1302**	0.1261**	0.1301**
	(2.44)	(2.34)	(2.43)
Lower-middle class	0.1810***	0.1754***	0.1810***
	(3.51)	(3.36)	(3.50)
Upper and upper-middle class	0.3061***	0.2986***	0.3060***
	(5.44)	(5.27)	(5.44)
Observations	1150	1150	1150

Notes: z-statistics based on robust standard errors are reported in parentheses. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Table A5: Determinants of life satisfaction with different distances from protests, marginal effects of probit estimations

Dependent variable:	(A3.1)	(A3.2)	(A3.3)	(A3.4)	(A3.5)	(A3.6)	(A3.7)	(A3.8)	(A3.9)
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 A6: Determinants of life satisfaction using different location subsamples, marginal effects of probit estimations

Dependent variable: Life satisfaction	(A4.1) Survey Dummy, Full Sample	(A4.2) Survey Dummy, Urban	(A4.3) Survey Dummy, Rural	(A4.4) Home Dummy, Full Sample	(A4.5) Home Dummy, Urban	(A4.6) 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 A7: Different paths of mediation analysis, marginal effects of probit estimations

	(A5.1) Dep. Var. Security	(A5.2) Dep. Var. Surveillance	(A5.3) Dep. Var. Life satisfaction	(A5.4) Dep. Var. Life satisfaction	(A5.5) Dep. Var. Security	(A5.6) Dep. Var. Surveillance	(A5.7) Dep. Var. Life satisfaction	(A5.8) Dep. Var. Life satisfaction
					Female	Female	Female	Female
Protests	-0.0170	-0.0502***	-0.0334**	-0.0254*	-0.0048	-0.0937***	-0.0555**	-0.0409*
	(-1.16)	(-2.66)	(-2.24)	(-1.66)	(-0.24)	(-3.33)	(-2.50)	(-1.90)
Security				0.1770***				0.1608***
				(8.56)				(5.40)
Surveillance				0.0840***				0.1288***
				(4.76)				(5.28)
Female	0.0359**	0.0234	0.0340	0.0250				
	(2.25)	(1.42)	(1.55)	(1.22)				
Age	-0.0056	0.0103**	-0.0066	-0.0064	-0.0016	0.0098*	-0.0100	-0.0107
	(-0.97)	(2.45)	(-1.19)	(-1.12)	(-0.24)	(1.68)	(-1.11)	(-1.15)
Age²	0.0001	-0.0001**	0.0001	0.0001	0.0000	-0.0001*	0.0001	0.0001
	(1.07)	(-2.49)	(1.42)	(1.36)	(0.30)	(-1.67)	(1.26)	(1.29)
Married	0.0125	0.0279	0.0514**	0.0468*	0.0079	0.0419*	0.0650*	0.0568
	(0.73)	(1.38)	(2.05)	(1.84)	(0.29)	(1.67)	(1.68)	(1.52)
Unemployed	-0.0036	-0.0107	-0.0598**	-0.0577**	0.0063	-0.0015	-0.0448	-0.0459
	(-0.18)	(-0.58)	(-2.51)	(-2.51)	(0.24)	(-0.06)	(-1.33)	(-1.43)
Corruption	-0.0949***	-0.1245***	-0.1577***	-0.1287***	-0.0761***	-0.1330***	-0.1731***	-0.1420***
	(-6.92)	(-6.25)	(-8.34)	(-6.97)	(-3.89)	(-5.41)	(-7.14)	(-5.71)
Religion	0.1327***	0.2157***	0.1572***	0.1080***	0.0878***	0.2371***	0.1566***	0.1028***
	(6.00)	(11.33)	(5.89)	(4.55)	(4.46)	(10.16)	(5.09)	(3.75)
Primary education	-0.0543	-0.1038**	-0.1020***	-0.0851**	-0.0126	-0.0843	-0.1223**	-0.1131*
	(-1.63)	(-2.40)	(-2.65)	(-2.13)	(-0.26)	(-1.28)	(-2.12)	(-1.92)
Secondary education	-0.0684**	-0.1034***	-0.1434***	-0.1229***	-0.0565	-0.0991**	-0.1582***	-0.1381***
	(-2.39)	(-2.83)	(-4.32)	(-3.59)	(-1.26)	(-2.03)	(-3.36)	(-2.69)
Tertiary education	-0.0722**	-0.1368***	-0.2037***	-0.1780***	-0.0626	-0.0964*	-0.2300***	-0.2082***
	(-2.40)	(-3.25)	(-5.65)	(-4.74)	(-1.40)	(-1.80)	(-4.28)	(-3.57)
Working class	0.0135	0.0265	0.1119***	0.1069***	0.0216	0.0241	0.1111*	0.1036*
	(0.54)	(0.68)	(2.70)	(2.69)	(0.58)	(0.47)	(1.79)	(1.77)
Lower-middle class	0.0212	-0.0115	0.2040***	0.2003***	0.0306	-0.0217	0.2446***	0.2411***
	(0.73)	(-0.33)	(5.80)	(5.94)	(0.90)	(-0.46)	(4.72)	(4.88)
Upper and upper-middle class	-0.0048	0.0811*	0.4068***	0.4028***	-0.0074	0.0652	0.4017***	0.3973***
	(-0.15)	(1.94)	(9.97)	(10.60)	(-0.19)	(1.25)	(6.67)	(7.01)
Observations	2207	2207	2207	2207	1116	1116	1116	1116

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.