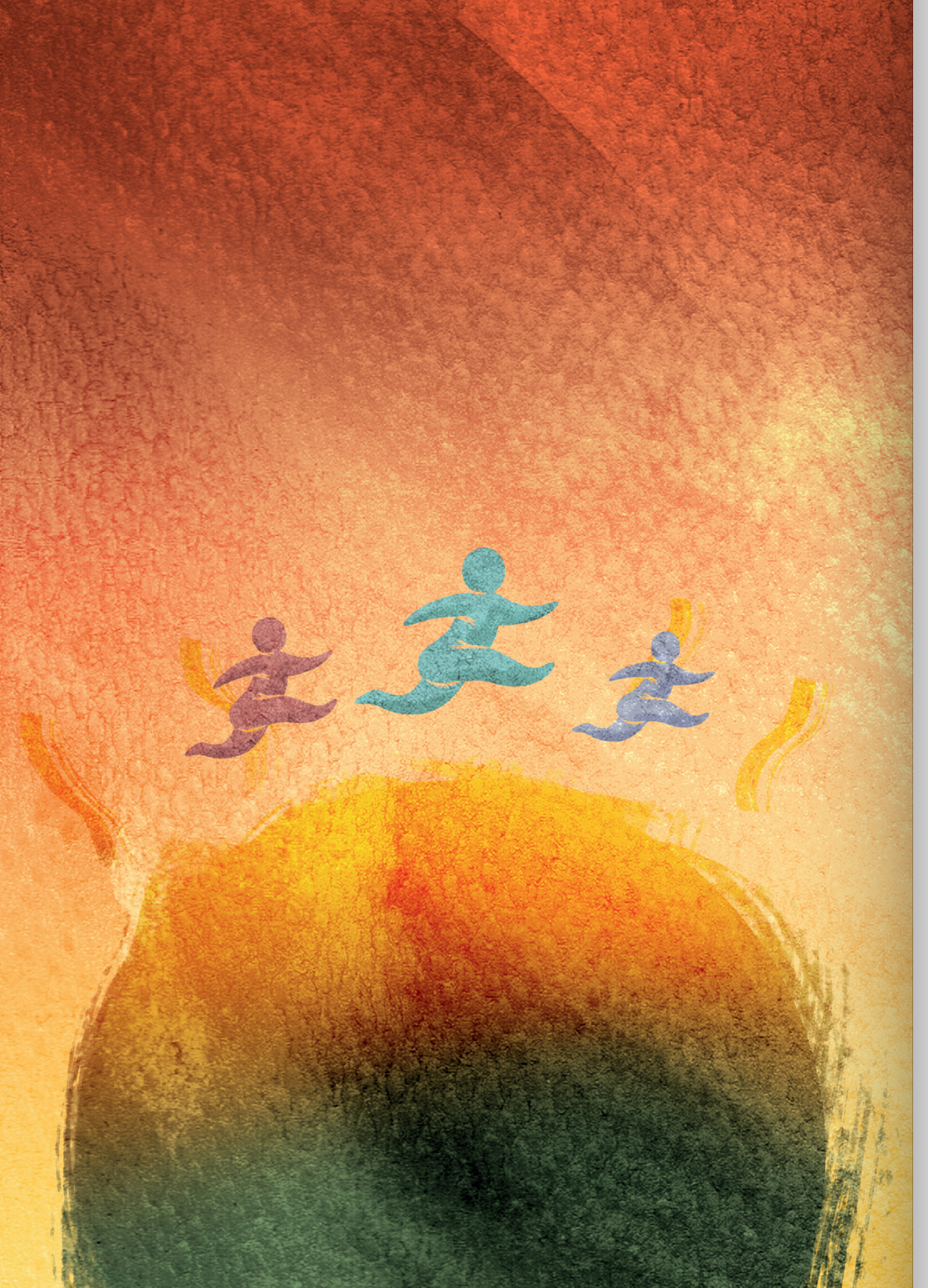

4

SUPPLEMENTARY INFORMATION
TO CHAPTER 4:

Collective Transilience in the face of Climate Change

Table S1. Demographic characteristics of participants in Study 1

Characteristic	n	%
Gender		
Woman	72	38.92
Man	112	60.54
Other	1	0.54
Ethnicity		
White	128	69.19
Hispanic/Latino	9	4.86
Black/African American	32	17.3
Native American/American Indian	1	0.54
Asian/Pacific islander	7	3.78
Other	1	0.54
Mixed Ethnicity	7	3.78
Highest educational level		
No formal education	30	16.22
High school	12	6.49
Vocational training	80	43.24
College	61	32.97
University	2	1.08
Doctorate	0	0.00
Income		
Less than $20,000	18	9.73
$20,000 - $34,999	31	16.76
$35,000 - $49,999	30	16.22
$50,000 - $74,999	59	31.89
$75,000 - $99,999	26	14.05
More than $100,000	17	9.19
Prefer not to say	4	2.16
Total	185	100

Table S2. Demographic characteristics of participants in Study 2

Characteristic	n	%
Gender		
Woman	120	40.27
Man	175	58.72
Other	1	0.34
Missing	2	0.67
Highest Educational Level		
Primary	3	1.01
Secondary	85	28.52
Higher vocational	153	51.34
University	51	17.11
Other	1	0.34
Missing	5	1.68
Monthly Household Income		
Less than €1000	5	1.68
€1000-2000	17	5.70
€2000-3000	33	11.07
€3000-4000	58	19.46
€4000-5000	52	17.45
More than €5000	53	17.79
Prefer not to say	70	23.49
Missing	10	3.36
Total	298	100

Additional information about sampling in Study 2

We initially aimed to also recruit a sample from a group of 147 residents of Stadshagen who before our data collection had already indicated to be interested in the SensHagen initiative by signing up for the SensHagen newsletter. We call this group 'members', to distinguish them from the Stadshagen residents who had not signed up to the SensHagen newsletter. However, only 42 members started our survey, of which only 19 could be retained after data cleaning. Given the low statistical power with this group (0.48 to detect a medium effect size (i.e., $r = .30$ for correlations, $f^2 = .15$ for a multiple regression), we did not analyse the data for this group. As we assume this sample comes from a different population compared to non-members, and that being already involved in SensHagen may have affected the variables of interest, we did not opt for collapsing the two samples.

Content validity of the transilience scales across studies

Explanation

We aimed to corroborate the content validity of the collective transilience scale in a similar way as it was done for the individual transilience scale (see Lozano Nasi et al., 2023). To verify that the items developed do capture well the three components of collective transilience. we use a well-established method for CFA, the oblique Multiple Group Method (Stuive et al., 2008). As shown in Table S3 and S4, the items of collective transilience consistently correlated more strongly and positively with the expected subcomponent, showing that the items capture the three components of transilience well. We also verified that a three-dimensional model fits the data significantly better than a one-dimensional model (see table S5).

We used the Haberman method to test whether the transilience scale is measuring a single construct (despite consisting of *three* dimensions; as suggested by Reise et al., 2013). The Haberman method is considered a minimal test to establish whether sub-scores in a multidimensional scale have any psychometric justification (Reise et al., 2013). The Haberman method compares the proportional reduction in mean squared error based on total scores ($PRMSE_T$) and subscale scores ($PRMSE_S$). When $PRMSE_T > PRMSE_S$, the score on a component adds little value to the aggregated total score (Reise et al., 2013). Using the package *subscore* in R (version 4.0.2) we found that $PRMSE_T > PRMSE_S$ for all collective transilience components in both studies (see Table S8), suggesting that the total transilience score is what should be reported and interpreted.

Table S3. Results of the Oblique Multiple Group Method for collective transilience in Study 1

	Persistence	Adaptability	Transformability
Persistence			
1. We can be brave in the face of climate change risks	**.556**	.429	.402
2. We can be persistent when faced with climate change risks	**.507**	.428	.367
3. We can stay determined in the face of climate change risks	**.542**	.458	.378
4. No matter what climate change brings about. we can remain strong willed	**.525**	.464	.389
Adaptability			
1. I think we can take different actions to deal with climate change risks	.505	**.576**	.405
2. I think we have several options to deal with climate change risks	.434	**.558**	.431
3. I believe we can find multiple means to deal with climate change risks	.489	**.528**	.428
4. There are different ways in which we can cope with climate change risks	.352	**.487**	.377
Transformability			
1. Coping with the stress caused by climate change risks can strengthen us	.312	.390	**.515**
2. There can be advantages for us in dealing with climate change risks	.350	.372	**.568**
3. Dealing with climate change risks can make us grow as a person	.371	.434	**.509**
4. We can learn something good from dealing with climate change risks	.503	.445	**.541**

Table S4. Results of the Oblique Multiple Group Method for collective transilience in Study 2

	Persistence	Adaptability	Transformability
Persistence			
1. We, residents of Stadshagen, can be brave	**.879**	.622	.613
2. We, residents of Stadshagen, can be persistent	**.920**	.577	.625
3. We, residents of Stadshagen, can stay determined	**.916**	.550	.604
4. We, residents of Stadshagen, can remain strong willed	**.902**	.574	.620
Adaptability			
1. I think we, residents of Stadshagen, can take different actions to deal with this	.585	**.817**	.613
2. I think we, residents of Stadshagen, have several options to deal with this	.572	**.857**	.639
3. I believe I think we, residents of Stadshagen, can find multiple means to deal with this	.593	**.855**	.672
4. There are different ways in which we, residents of Stadshagen, can cope with this	.572	**.832**	.655
Transformability			
1. Coping with the stress this causes can strengthen us, residents of Stadshagen	.672	.640	**.736**
2. Dealing with this can have advantages for us, residents of Stadshagen	.616	.676	**.767**
3. By dealing with this we, residents of Stadshagen, can grow as a group	.600	.606	**.769**
4. We, residents of Stadshagen, can learn something good from dealing with this	.574	.658	**.762**

Table S5. Comparing 3-factor structure to a 1-factor structure for collective transilience across studies

Study 1						
	CFI	RMSEA	SRMR	AIC	BIC	Chi square difference 3 factor model
Benchmark	**>.95**	**< .06**	**< .08**	**N/A**	**N/A**	**N/A**
Three factor model	.98	.03	.05	5921.344	6008.294	N/A
Unifactor model	.90	.08	.07	6007.693	6084.981	$\chi2$ (3) = 36.3. p < .001
Study 2						
	CFI	RMSEA	SRMR	AIC	BIC	Chi square difference 3 factor model
Three factor model	.98	.02	.04	7324.985	7424.807	N/A
Unifactor model	.49	.10	.14	8719.877	8808.608	$\chi2$ (3) = 500. p < .001

Table S6. Results of Haberman method for collective transilience scales in Study 1 and Study 2

	Study 1		Study 2	
	$PRMS_S$	$PRMS_T$	$PRMS_S$	$PRMS_T$
Persistence	0.819	0.858	0.974	0.975
Adaptability	0.821	0.866	0.954	0.957
Transformability	0.820	0.851	0.926	0.937

Note. $PRMS_T$ = proportional reduction in mean squared error based on total score. $PRMS_S$ = proportional reduction in mean squared error based on subscale score
Values calculated using the package 'subscore' in R studio

Concurrent, discriminant and incremental validity of the collective transilience scale across studies

We tested concurrent and discriminant validity by examining the correlation between collective transilience and theoretically related constructs (Boateng et al., 2018), in a similar way as done to test the validity of the individual transilience scale (Lozano Nasi et al., 2023). We expect higher collective transilience to be positively related to collective efficacy, yet we don't expect the relationship to be too strong, as we propose collective transilience to be something different from collective efficacy (i.e., correlations should be below the cut-off for construct overlap of around r = .85; Kenny, 2016). Moreover, we expect higher collective transilience to be related to more positive affect about climate change (e.g., optimism), as people acknowledge they have the capacity to adapt as a community, as well as potential beneficial opportunities. At the same time, we do not assume higher transilience implies that people downplay the risks posed by climate change. Thus, we expect collective transilience not to be negatively correlated with climate change risk perceptions and with common fate (i.e., the perception that people face the risks posed by climate change together as a collective; Drury, 2016). Next, we examined incremental validity of collective transilience by assessing whether it still relates to relevant outcome variables when controlling for collective efficacy. As shown in tables S7, S8 and S9, we found support for the concurrent, discriminant and incremental validity of the collective climate change transilience scale.

Additional measures used to assess concurrent, discriminant and incremental validity

Assessed on a scale from 1 - *strongly disagree* to 7 - *strongly agree*

Common Fate (Study 1; adapted from Drury et al., 2016; α = .87)

1. Climate change risks puts us all in danger
2. In the face of climate change risks we all share the same fate
3. It is all of us against climate change risks

Positive affect in the face of climate change (Study 1, α = .89)

When I think about climate change I feel...

1. hopeful
2. optimistic

Community climate risk perception (Study 1)

1. Climate change poses a risk to my community

Common Fate (Study 2, adapted from Drury et al., 2016; α = .73)

1. The risks of climate change put us, the residents of Stadshagen, all at risk.
2. In the face of climate change risks we, the residents of Stadshagen, all share the same fate
3. It is all of us, the residents of Stadshagen, against climate change risks

Risk perception (Study 2)

Climate change poses a risk to the inhabitants of Stadshagen

Collective efficacy (Study 2; r_{sb} = .84)

1. I think that inhabitants of Stadshagen, as a group, can reduce the negative consequences of climate change in Stadshagen
2. I think that inhabitants of Stadshagen, by working together, can adapt to the negative impacts of climate change in Stadshagen.

Table S7. Concurrent and discriminant validity of the collective transilience scale in Study 1

	M	*SD*	1	2	3
1. Collective transilience	5.61	0.8			
2. Common fate	5.70	1.17	.34***		
3. Positive affect	4.33	1.75	.34***	-.04	
4. Community risk perception	5.69	1.33	.32***	.72***	.04

Note. * p < .05, ** p < .01, *** p < .001

Table S8. Concurrent and discriminant validity of the collective transilience scale in Study 2

	M	*SD*	1	2	3
1. Collective transilience	4.52	1.05			
2. Common fate	4.11	1.39	.41***		
3. Risk perception Stadshagen	4.67	1.66	.31***	.67***	
4. Collective efficacy	4.71	1.51	.40***	.51***	.54***

Table S9. Incremental validity of collective transilience over and above collective efficacy (Study 2)

	1	2	3	4	5	6
1. Collective transilience						
2. Evaluation SH	.19**					
3. Interest to join SH	.23***	.51***				—
4. Intention to support SH	.16**	.29***	.61***			
5. Information seeking SH	.10	.34***	.57***	.36***		
6. Community-based adaptation	.28***	.31***	.48***	.52***	.40***	
7. Individual adaptation	.12*	.18**	.29***	.36***	.19**	.60***

Note. Partial correlations controlling for collective efficacy