Appendix A

Measures[1]

In general, after Wuhan was locked down[2], you would say that your health is:

- ○ Poor
- ○ Fair
- ○ Good
- ○ Very good
- ○ Excellent

In general, after Wuhan was locked down,

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
In most ways my life was close to my ideal.	○	○	○	○	○
The conditions of my life were excellent.	○	○	○	○	○
I was satisfied with my life.	○	○	○	○	○
If I could have lived my life over, I would have changed almost nothing.	○	○	○	○	○

Since Wuhan was locked down,

	Never	Occasionally	Somewhat	Often	Always

[1] In the second survey, we specified and highlighted the time frame for each question as "after the lifting of lockdown restrictions (**since April 8th**)".

To what extent did you use social media for **interaction**? (i.e.., direct communication with others)	○	○	○	○	○
To what extent did you use social media for sharing information that is **not** relevant to the coronavirus? (e.g., posting selfies, or life stories)	○	○	○	○	○
To what extent did you use social media for sharing information that **are particularly relevant to** the coronavirus (e.g., experience, thoughts, feelings, and comments)?	○	○	○	○	○
To what extent did you browse others' profiles, pictures, comments, and posts that are **not** relevant to coronavirus?	○	○	○	○	○
To what extent did you browse others' profiles, pictures, comments, and posts that **are particularly relevant to** coronavirus?	○	○	○	○	○

How supportive do you perceive your social media friends (i.e. the group of people whom you are connected with on social media) to be?

- ○ Not at all
- ○ A little
- ○ Somewhat
- ○ Quite a bit
- ○ Very much

Since Wuhan was locked down, have you ever felt:

	Not at all	A little (2)	Somewhat	Quite a bit	Very much
I lack companionship.	○	○	○	○	○
I felt left out.	○	○	○	○	○

I felt isolated from others. ○ ○ ○ ○ ○

Since Wuhan was locked down,

	Not at all	A little true	Somewhat true	Quite a bit true	Very much true
There are people with whom I can share joys and sorrows.	○	○	○	○	○
There are people who try to help me.	○	○	○	○	○
There are people who are a real source of comfort to me.	○	○	○	○	○
There are people I can count on when things go wrong.	○	○	○	○	○
There are people who care about my feelings.	○	○	○	○	○
There are people who are willing to help me make decisions.	○	○	○	○	○

	Male (1)	Female (2)
Your gender (1)	○	○

Your age:

_____

During the lockdown (/after the lockdown was lifted, April, 8th), how many people are in your household?

_____

Appendix B

Chinese Version of Questionnaire[3]

整体而言，在武汉封城后您的健康状况如何？

- ○ 很差
- ○ 稍差
- ○ 一般
- ○ 健康
- ○ 非常健康

结合武汉封城后您的生活，请回答您是否同意以下观点：

	非常不同意 (1)	不同意 (2)	不太确定 (3)	同意 (4)	非常同意 (5)
我生活中的大多数方面很接近我的理想状态。	○	○	○	○	○
我的生活状况非常好。	○	○	○	○	○
我对自己的生活非常满意。	○	○	○	○	○

[3] In the second survey, we specified and highlighted the time frame for each question as "after the lockdown was lifted (**Since April 8th**) 在武汉解封后（自 4 月 8 日以后）".

在武汉封城以后，

	从不	偶尔	有时	时常	总是
整体而言，您使用社交网站来进行**交流沟通**（如聊天，点赞评论等）的频率为？	○	○	○	○	○
整体而言，您在社交网站上**分享与疫情无关的信息**(如自拍，生活细节)的频率为？	○	○	○	○	○
整体而言，您在社交网站上**发布关于疫情的信息，感想，评论**的频率为？	○	○	○	○	○
整体而言，您在社交网站上浏览**他人发布的与疫情无关的信息**的频率为？	○	○	○	○	○
整体而言，您使用社交网站来**浏览阅读他人发布的疫情相关信息**的频率为？	○	○	○	○	○

在武汉封城后，您如何评估社交媒体上的朋友给过您的支持，帮助或鼓励？

- ○ 他们未曾提供支持或帮助
- ○ 他们提供了一点支持和帮助
- ○ 他们支持帮助过我
- ○ 他们提供了不少支持和帮助
- ○ 他们提供了大量的支持和帮助

在武汉封城后，您是否：

	从不	偶尔	有时	时常	总是
觉得缺少陪伴？	○	○	○	○	○
感到被忽略?	○	○	○	○	○
感到与他人隔绝？	○	○	○	○	○

在武汉封城后，结合您的自身经历，您是否同意以下表述：

	非常不同	不同意	不确定	同意	非常同意

	意				
我觉得在我身边有可以与我分享喜怒哀乐的人。	○	○	○	○	○
我觉得在我身边有试图帮助我的人。	○	○	○	○	○
我觉得在我身边有可以给我安慰的人。	○	○	○	○	○
我觉得在我身边有可以为我排忧解难的人。	○	○	○	○	○
我觉得在我身边有**关**心我的人。	○	○	○	○	○
我觉得在我身边有愿意为我出谋划策的人。	○	○	○	○	○

您的性别：

○ 男

○ 女

Q20 您的年龄(请输入数字)：

_____

在此次隔离期间，有多少家庭成员（或室友）与您同住？（如您独居，请输入 0）

_____

Appendix C
Path analysis Syntax and Results on Indirect Links

```
VARIABLE: NAMES= Time CONN GEN Q25 Age LS LL SS AC PU[4];
      USEV= CONN GEN Q25 Age LS LL SS AC PU
      MISSING ARE ALL (999.0);

ANALYSIS:
TYPE = GENERAL;
BOOTSTRAP = 10000;

MODEL:

LS on ac (CDASH1);
LS ON pu age gen q25;
LS ON conN(BA1);
LS ON sS(BA2);

LL on ac(CDASH2);
LL ON pu agE gen q25;
LL ON conN(BB1);
LL ON sS(BB2);

CONN ON AC(A1);
CONN ON pu age Q25 gen;

SS ON AC(A2);
SS ON CONN(D1);
SS ON PU AGE q25 GEN;

LL with LS;

MODEL CONSTRAINT:
NEW(A1BA1 A1BB1 A2BA2 A2BB2 A1D1BA2 A1D1BB2 TOTALIND1 TOTALIND2
TOTAL1 TOTAL2);

A1BA1 = A1*BA1;
A2BA2 = A2*BA2;
A1D1BA2=A1*D1*BA2;
TOTALIND1 = A1*BA1+A2*BA2+A1*D1*BA2;
TOTAL1=A1*BA1+A2*BA2+A1*D1*BA2+CDASH1;
```

[4] Here "time" refers to the wave of data collected. Additionally, the following abbreviations are used throughout the analysis: CONN denotes perceived online network responsiveness, Q25 represents the number of individuals living in one household, LS reflects life satisfaction, LL refers to loneliness, SS indicates social support, AC denotes active social media use, and PU represents passive social media use.

```
A1BB1 = A1*BB1;
A2BB2 = A2*BB2;
A1D1BB2=A1*D1*BB2;
TOTALIND2 = A1*BB1+A2*BB2+A1*D1*BB2;
TOTAL2=A1*BB1+A2*BB2+A1*D1*BB2+CDASH2;

OUTPUT:
SAMP STDYX CINT(BCBOOTSTRAP) MOD(2);
```

Appendix D

Post-hoc Analysis

To explore what activities were associated with perceived online network responsiveness and perceived social support, we conducted post-hoc regression analysis with specific social media activities, demographics, and the number of people living in one household as independent variables, and perceived online network responsiveness and perceived social support as dependent variables, respectively. Results are reported in Table 2, as below. First, ANOVA Results showed that people reported using social media significantly more for direct communication, F (1, 1302) = 13.58, $p < .001$, and sharing COVID-related information, F (1, 1301) = 41.98, $p < .001$, during lockdown than post-lockdown. However, among the various social media activities, only direct interaction was positively associated with perceived online network responsiveness and perceived social support across both waves. Sharing COVID-related information was positively associated with online network responsiveness only during the lockdown. None of the other activities were associated with either online network responsiveness or perceived social support.

Table 2.

Regression Analysis: *Social Media Activities, Perceived Responsiveness and Social Support*

	Network responsiveness			Social support		
		95% CI			95% CI	
During Lockdown (Wave 1)	*β*	*LL*	*UL*	*β*	*LL*	*UL*
Interaction	**.19*** **	.11	.27	**.18*** **	.05	.12
Sharing non-covid information	.004	-.08	.09	.01	-.04	.05
Sharing covid information	**.17*** **	.10	.28	-.05	-.08	.02
Browsing non-covid information	.01	-.07	.10	.06	-.01	.08
Browsing covid-information consumption	.04	-.05	.14	-.01	-.05	.05
Age	-.004	-.01	.01	**.08***	.00	.01
Gender	.02	-.15	.19	**.13*** **	.08	.26
The number of people living in the household	**-.**07	-.11	-.01	-.07	-.05	.00
Adjusted R^2		**.11**			**.05**	
After Lockdown (Wave 2)						
Interaction	**.21*** **	.08	.32	**.23*** **	.06	.21
Sharing non-covid information	.11	-.02	.28	-.06	-.14	.05
Sharing covid information	.04	-.14	.26	-.01	-.13	.11
Browsing non-covid information	-.08	-.26	.07	-.12	-.18	.03
Browsing covid-information consumption	.13	-.01	.32	.14	-.01	.20
Age	.03	-.01	.02	.01	-.01	.01
Gender	.01	-.23	.29	.10	-.02	.31
The number of people living in the household	**-.15** **	-.19	-.03	-.01	-.05	.05
Adjusted R^2		**.10**			**.04**	

Note: variables are based on composites; *$p < .05$, **$p < .01$, ***$p < .001$.

Appendix E

Testing Alternative Path Model

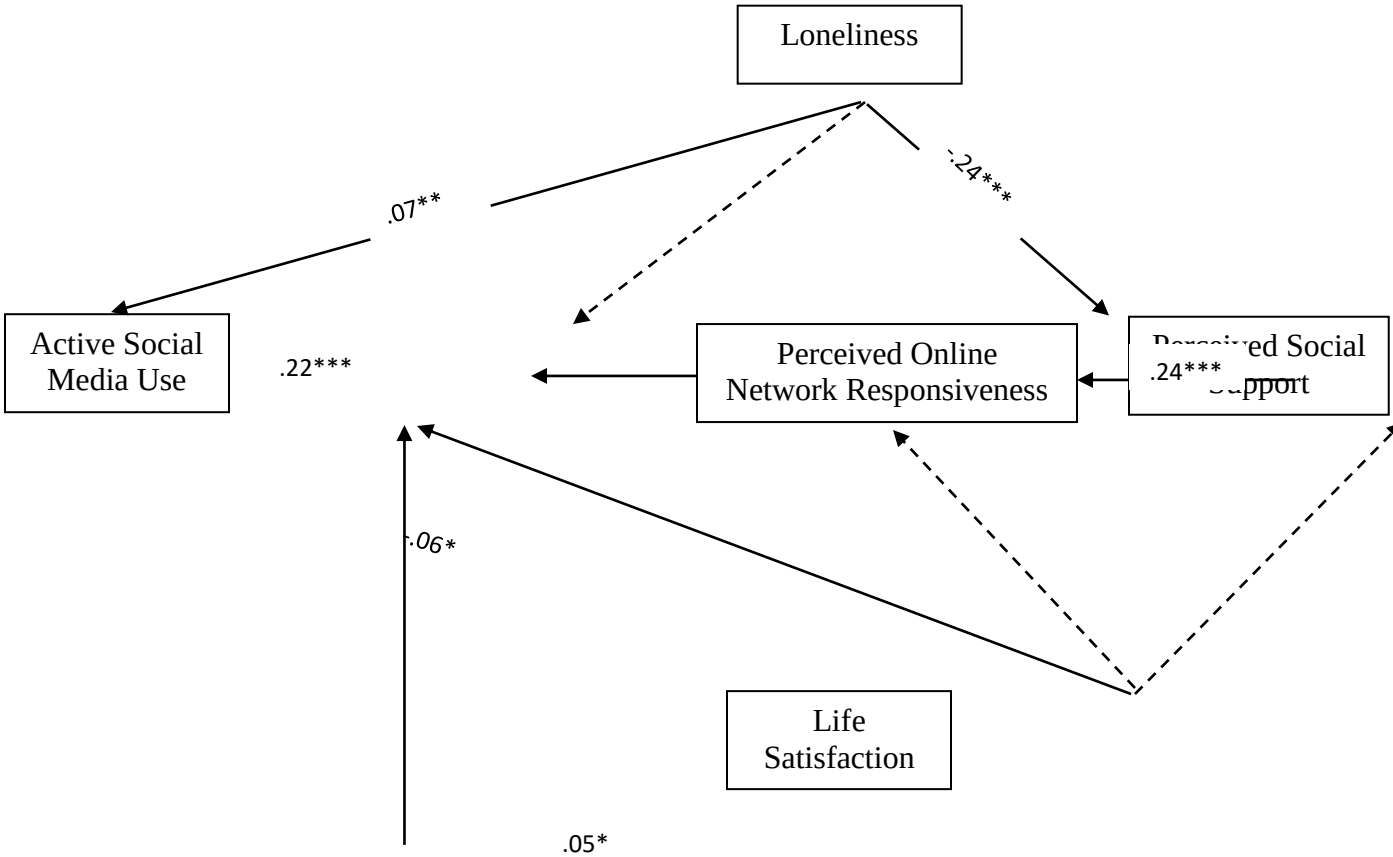
As pointed out in our discussion section, we suspect that the relationship between active social media use and well-being may be bi-directional. Therefore, we performed additional analysis to explore whether well-being measures (i.e., life satisfaction and loneliness) could predict active social media use, especially through the path of perceived social support and perceived online network responsiveness. We also tested a saturated model so that the alternative model also showed a perfect model fit (See the Figure below for more details).

In particular, perceived social support was negatively predicted by loneliness (β = -.22, p < .001), but not life satisfaction. Social support (β = .24, p < .001) was also a significant predictor of perceived online restrictiveness. Active social media use was predicted by perceived online network responsiveness (β = .22, p < .001), perceived social support (β = .05, p < .001), loneliness (β = .07, p < .001), and life satisfaction (β = -.06, p < .001), although the effect sizes were relatively smaller compared to the model we present in the main text.

In summary, these results suggest a bi-directional relationship, even a loop, between active social media use and well-being. Individuals who reported higher levels of loneliness and lower levels of life satisfaction were more likely to engage in active social media use. Specifically, loneliness was associated with a reduced sense of social support, which was related to lower perceived online network responsiveness, ultimately predicting more active social media use. Future studies should investigate the longitudinal associations between these variables to establish the time order or causality.

Figure 2.

Alternative model results


Loneliness
.07**
-.24***
Active Social Media Use
.22***
Perceived Online Network Responsiveness
.24***
-.06*
Life Satisfaction
.05*

Appendix F

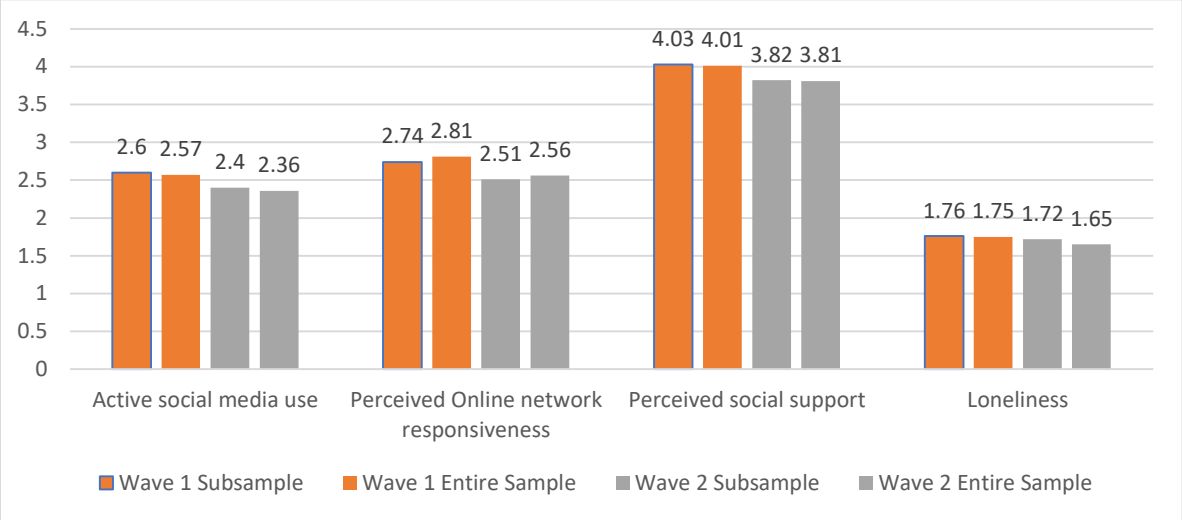
Supplemental Materials about the Data

We identified 184 participants who took part in both Wave 1 and Wave 2 of our study. However, likely due to privacy concerns, many participants did not provide accurate contact information, making it challenging to identify all individuals who participated in both waves. Consequently, we were unable to fully address the potential spill-over effect, where Wave 1 participants may recall the survey and respond differently compared to those who participated only in Wave 2. We recommend that future research employ anonymous identifiers, such as randomly generated numbers, to circumvent this issue.

Despite this limitation, we utilized statistical methods to control for potential biases. Importantly, our sub-sample showed no significant differences in key variables when compared to their cohorts in wave 1 or wave 2, respectively. This finding indicates that the subsample and others do not differ in key variables for either wave. The histograms below provide evidence supporting this finding:

Table 3.

Sample characteristics



Additionally, we conducted lagged dependent variable analyses using our sub-sample's longitudinal data. We controlled for prior levels of the dependent variables to predict their T2 levels. However, our results showed that Time 1 active social media use (independent variable) was not significantly related to any of the dependent variables at T2, including perceived online network responsiveness, perceived social support, loneliness, and life satisfaction. These findings provide additional support for our analytical approach, which treated the two samples as separate cross-sectional samples. The absence of significant relationships between Time 1 active social media use and the dependent variables at T2 implies that the possible spill-over effect from the 184 participants who took part in both waves is minimal. Essentially, this means there is no

compelling evidence to suggest that the experiences of these participants in Wave 1 had a substantial impact on their responses in Wave 2.