

Malnutrition in early life and adult mental health: Evidence from a natural experiment

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饥荒是一次独特的机会来研究早期经历饥荒对于心理健康的影响，利用中国 4972 个出生在 1956-1963 年间的样本。

we investigated the potential impact of exposure to the 1959-1961 Chinese Famine in utero and during the early postnatal life on adult mental illness.

结果发现与对照组相比出生在 1959-1961 年的女性有更高的 GHQ (General Health Questionnaire) 得分，并且提高了患有精神疾病的风险，饥荒时期出生的男性有耕地的 GHQ 得分，切患有精神疾病的风险与对照组相比不显著。

我们推测，早年遭受饥荒的长期后果包括选择最顽强的人和饥荒对幸存者的持久有害影响。在严重饥荒期间，男性胎儿与女性胎儿在子宫内的生物脆弱性更大，自然选择也更强，这可能会导致男性比女性有更强的选择效应，从而掩盖了饥荒对男性日后患精神疾病风险的有害影响

文献的贡献

分性别来看影响

结果

Table 1
GHQ scores and risk of mental illness by sex among Chinese born in 1956–1963. Identified in a community-based epidemiological survey in rural areas from Zhejiang, Shandong, Qinghai, and Gansu provinces conducted 2001–2005.

	Women					Men				
	N	GHQ-12 (std)	Risk of mental illness (%)			N	GHQ-12 (std)	Risk of mental illness (%)		
			Low	Moderate	High			Low	Moderate	High
1956	252	1.13 (1.95)	59.5	21.8	18.7	277	0.76 (1.72)	67.9	15.2	17.0
1957	303	0.81 (1.71)	69.3	18.5	12.2	320	0.68 (1.59)	68.8	17.2	14.1
1958	227	0.89 (1.65)	67.4	16.3	16.3	261	0.74 (1.57)	69.4	14.6	16.1
1959	254	0.93 (1.79)	64.2	18.1	17.7	220	0.86 (1.84)	68.2	17.3	14.6
1960	219	1.15 (2.01)	62.6	16.4	21.0	280	0.70 (1.40)	63.9	21.8	14.3
1961	279	0.90 (1.78)	65.6	17.2	17.2	225	0.77 (1.79)	69.3	17.3	13.3
1962	416	0.80 (1.65)	68.0	16.4	15.6	410	0.70 (1.46)	66.6	19.8	13.7
1963	514	0.77 (1.67)	70.2	16.0	13.8	515	0.58 (1.30)	72.8	16.5	10.7

每个地区的饥荒程度有所不同，因此需要构造饥荒严重程度的指数。

衡量饥荒严重程度

Table 2

Cohort size shrinkage, excess mortality, and fertility reduction indices during the 1959–1961 Chinese famine.

Province	Cohort size shrinkage index	Excess mortality index	Fertility reduction index
Beijing	0.22	1.67	0.30
Tianjin	0.33	1.80	0.26
Hebei	0.34	3.12	0.36
Shanxi	0.26	0.95	0.23
Nei Mongol	0.2	0.47	0.22
Liaoning	0.32	5.55	0.31
Jilin	0.23	2.22	0.19
Heilongjiang	0.19	1.75	0.14
Shanghai	0.22	0.62	0.25
Jiangsu	0.42	5.10	0.36
Zhejiang	0.35	1.88	0.36
Anhui	0.63	21.07	0.62
Fujian	0.37	3.68	0.33
Jiangxi	0.35	2.37	0.30
Shandong	0.4	7.87	0.37
Henan	0.47	10.22	0.46
Hubei	0.42	5.02	0.38
Hunan	0.54	8.80	0.48
Guangdong	0.35	3.37	0.29
Guangxi	0.46	10.90	0.31
Sichuan	0.61	28.63	0.52
Guizhou	0.52	16.38	0.42
Yunnan	0.38	3.15	0.37

Table 3

Estimated coefficients of famine effect on scores of GHQ-12, based on negative binomial regression with difference-in-difference estimator.

	Women		Men	
	Estimated change in mean score*	95% CI	Estimated change in mean score*	95% CI
1956	0.81	(-0.08, 1.69)	-0.50	(-1.42, 0.42)
1957	-0.35	(-1.47, 0.77)	-0.13	(-1.07, 0.82)
1958	0.55	(-0.36, 1.47)	-0.56	(-1.32, 0.20)
1959	1.52	(0.42, 2.63)	-0.50	(-1.95, 0.96)
1960	0.68	(-0.20, 1.56)	-0.99	(-1.60, -0.37)
1961	0.69	(-0.52, 1.90)	-1.14	(-2.21, -0.06)
1962	0.63	(-0.22, 1.48)	-0.84	(-1.70, 0.03)

Reference group is the 1963 birth cohort. Method of computing the estimated effect of famine exposure on mean GHQ scores is described in the [Methods Section](#). Higher GHQ-12 scores represent greater risk of mental illness.

只对 1959 年出生的有显著影响

