



Effects of material hardship on depression among adults in South Korea : insights from by the Korea Welfare Panel Study 2008-2017

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INTRODUCTION

- **Material hardship (MH)** was developed to capture the **multidimensional aspect of financial challenges** people encounter daily by Sen and Townsend.
- The World Health Organization stated that “No group is immune to mental disorders, but the risk is higher among the poor, homeless, the unemployed, persons with low education”.
- The aim of our study was to identify **the effect of transition of experiencing MH over two consecutive years on depression repeatedly** using a panel data after adjusting demographic, socioeconomic, and health related factors.

MATERIALS AND METHODS

- **Data and study population:** the Korea Welfare Panel Study wave 3 (2008) to wave 12 (2017)
 - ✓ **Exclusion criteria:** Under 19 years old or did not respond to the MH questions in the prior years.
 - ✓ **Final study population :** 16,613 individuals (the initial first subsequent year 2009 data) → 3,866 individuals (the final first subsequent year 2009 data)
- **Outcome variables:** Depression status measured by CESD-11
 - Consisted of 11 questions and the total score was calculated by adding the scores for all the items and multiplying these values by 20/11
 - Higher scores indicated greater distress.
- **Main key variable:** Material Hardship (13 questions: whether their household was affected by MH in the prior year)

Dimensions	Questions
Food hardship	Ran out of food and could not afford to buy more
	Could not afford balanced meals
	Adults in the household skipped meals or did not have enough to eat
	Ate less than needed because could not afford to buy enough food
	Were hungry but did not eat because could not afford to buy food to eat
Paying utilization bills hardship	Had electricity, telephone, or water disconnected because of unpaid bills
Housing hardship	Unable to pay the utility bills before a due date
	Unable to pay rent for over two months or had to move out because of unpaid rent or inability to pay rent
Medical care hardship	Unable to use the home heating system properly during the winter
	Me or other family members needed to see a doctor but could not afford to go
Financial hardship	Unable to pay the national health insurance premium and lost eligibility for national health insurance
	Had problems with credit,
Education hardship	Unable to pay the children’s public education tuitions. All items were binary variables

- (1) “No→No” for not having experienced MH for the whole study period
- (2) “No→Yes” for not having experienced MH in the prior year but having experienced MH in the following year
- (3) “Yes→No” for having experienced MH in the prior year not having experienced MH in the following year
- (4) “Yes→Yes” for having experienced MH in both the prior year and following years of the study

- **Covariates:** Demographic(gender, age, and region), socioeconomic(education level, marital status, income level, and the National Basic Livelihood Guarantee System [NBLGS] beneficiary status) and health-related factors(smoking and alcohol intake status, disability status, depression status in prior year, and presence of chronic disease) were included.
- **Statistical analysis:** An ANOVA and the generalized estimating equation (GEE) model were performed using the GENMOD procedure in SAS version 9.4 and considered statically significant if the p-value was less than 0.05.

RESULTS

Table 1. Participants' general characteristics at the first change time point (2008→2009)

Variables	CESD-11											
	Male					P value	Female					P value
	N	%	MEANS	±	SD		N	%	MEANS	±	SD	
TOTAL	3,568	100	8.02	±	9.06		298	100	15.77	±	12.57	
Change in material hardship (2008→2009)												
No → No	2,539	71.2	6.79	±	8.05	<.0001	142	47.7	14.14	±	12.29	0.3803
No → Yes	243	6.8	10.86	±	10.32		20	6.7	19.18	±	14.29	
Yes → No	403	11.3	9.56	±	9.96		50	16.8	15.27	±	12.12	
Yes → Yes	383	10.7	12.77	±	11.08		86	28.9	17.95	±	12.63	
Prior year depression status (2008)												
No	2,924	82.0	6.31	±	7.34	<.0001	164	55.0	10.51	±	10.47	<.0001
Yes	644	18.0	15.79	±	11.67		134	45.0	22.20	±	11.96	

Table 2. Generalized estimating equation (GEE) analysis of factors associated with CESD-11

Variables	CESD-11					
	Male			Female		
	β	S.E	P value	β	S.E	P value
Change in material hardship						
No → No	Ref.			Ref.		
No → Yes	2.28	0.20	<.0001	3.41	0.26	<.0001
Yes → No	0.45	0.16	0.0045	0.84	0.21	<.0001
Yes → Yes	2.82	0.24	<.0001	3.98	0.30	<.0001
Prior year depression status						
No	Ref.			Ref.		
Yes	3.14	0.19	<.0001	2.93	0.18	<.0001

*All covariates were adjusted.

RESULTS

Table 4. GEE analysis of each material hardship dimension.

Material hardship dimensions	CESD-11									
	No → No	No → Yes			Yes → No			Yes → Yes		
	β	β	S.E	P value	β	S.E	P value	β	S.E	P value
Male										
Food hardship	Ref.	2.46	0.26	<.0001	0.67	0.21	0.0016	3.29	0.43	<.0001
Housing hardship	Ref.	2.02	0.57	0.0004	0.13	0.45	0.7678	1.54	0.75	0.0408
Paying utilization bills hardship	Ref.	1.02	0.36	0.0047	0.37	0.25	0.1380	1.53	0.58	0.0083
Financial hardship	Ref.	0.68	0.35	0.0478	-0.10	0.28	0.7258	0.87	0.32	0.0065
Education hardship	Ref.	0.01	0.72	0.9859	1.35	0.78	0.0817	0.52	1.61	0.7468
Medical care hardship	Ref.	1.54	0.48	0.0012	0.28	0.38	0.4718	-0.44	0.84	0.6005
Female										
Food hardship	Ref.	3.70	0.31	<.0001	1.08	0.27	<.0001	4.05	0.44	<.0001
Housing hardship	Ref.	3.36	0.68	<.0001	0.42	0.60	0.4873	3.30	1.15	0.0040
Paying utilization bills hardship	Ref.	0.90	0.47	0.0570	-0.19	0.39	0.6189	1.10	0.76	0.1510
Financial hardship	Ref.	1.09	0.51	0.0319	0.25	0.36	0.4831	0.90	0.45	0.0430
Education hardship	Ref.	0.49	1.08	0.6481	-1.15	0.96	0.2311	-1.58	1.87	0.3978
Medical care hardship	Ref.	2.66	0.64	<.0001	0.12	0.52	0.8239	3.63	1.46	0.0133

*All covariates were adjusted.

DISCUSSION

- The main finding of the present study suggests **that changes in experiencing MH and constantly experiencing MH are related to an increased risk of depression**. Furthermore, **food hardship**, one of the dimensions of MH, was found strongly associated with depression, more than any other components, while education hardship was not statistically associated with depression.

- Ross and Huber pointed out that this result suggests that continuous daily struggles to meet basic needs with limited financial resources may result in feelings of frustration, exhaustion, hopelessness, and even depression.

- The lack of significant association between depression scores and education hardship and problems with paying utilization bills could be explained by...

✓ The sample size for those dimensions may have been too small

✓ Especially for education hardship, the freedom of the financial burden associated with public tuitions could have been a contributing factor.
In Korea, tuitions for public elementary and middle schools are fully supported by the state.

- One interesting result was that participants **who experienced MH in the prior year and no longer experienced MH in the following year still showed higher depression scores** than those who had never experienced MH.

✓ Explanation 1. Stigma

- Mickelson suggested that internalized stigma (individual’s personal negative feelings about their poverty) and experienced stigma (individual’s perception of being treated as stigmatized by behaviors and feelings of others) are related to depression as mediators.
- Internalized stigma and depression were partially mediated by self-esteem and fear of rejection, while experienced stigma was related to depression through fear of rejection only.
- Our results might reflect the process of suffering those stigmas and recovering from them.

✓ Explanation 2. Uncertainty about one’s future

- The persistent uncertainty about the future might develop a persistent cerebral energy crisis, contributing to systemic and brain malfunction.
 - When people feel uncertain, they anticipate that outcomes will turn out to be unexpected and have a sense of inability to avoid the surprise, and all their cognitive systems strive to reduce it by using cerebral energy.
 - Moreover, the “selfish brain” demands extra energy from the body in times of uncertainty.

- Limitations:

- Not using objective measurement tools for material hardship, such as Townsend index
- Somewhat limited to generalize them to the general population, particularly high income households, because the KoWePS data largely represent low income households
- Some unobserved confounding factors although we used several control

- Strengths :

- A nationwide survey with randomly sampled longitudinal data from an 11-year follow up which largely represents the South Korean low-income population
- Using MH to better incorporate the financial struggles that low-income households face

CONCLUSION

- We found that people who had experienced MH at least once had a higher risk for depression. Especially, people who kept experiencing MH were at the highest risk of depression. It was found that food hardship was strongly associated with depression.

- Based on this study, we should consider guaranteeing food security for the low-income population in order to reduce the incidence of depression.

- In addition, to identify the population at high risk of depression and people encountering financial struggles, the community and policy makers should consider MH in their approach.