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The Association Between Discrimination and Sleep is Exacerbated in Individuals with Comorbid Chronic Conditions



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Background

- Recurrent and stressful daily experiences appear to have particularly intensified consequences on sleep health in individuals with pre-existing chronic health conditions.
- There is ample evidence that experiences of discrimination have been associated with sleep outcomes.
- However, the exacerbating role of chronic comorbid health conditions (CCHCs), and the impact of related perceived impacts of discrimination on daily experiences, remains unclear.
- **Study Aim:** The present study investigated (1) associations between daily discrimination and sleep and (2) moderating roles of CCHCs and daily life interference and hardship.

Hypotheses

- **H1:** The impact of daily discrimination on sleep will be accounted for by reported number of CCHCs, whereby increased number of CCHCs will evidence worsened sleep outcomes (both TST and sleep quality outcomes).
- **H2:** The impact of self-reported CCHCs on the relationship between daily discrimination and sleep will be augmented by (1)hardship and (2)interference, whereby higher reports of both perceived hardship and interference will contribute to heightened impact of CCHCs on sleep outcomes respectively.

Methods

Sample Characteristics

- The current study utilized archival data from the Midlife in the United States Study (MIDUS) II, Projects 1 and 4.
- Participants were 174 adults (51% female, $M_{age} = 57$ yrs, $SD = 11.5$ yrs)

Measures

- **Subjective sleep quality:** The Pittsburgh Sleep Quality Index (PSQI) global sleep quality item and sleep diary entries over 7 days were utilized as indices of subjective sleep quality. Responses for diary sleep quality are made on a Likert scale from 1 (very good) to 5 (very poor). Global sleep scores are interpreted as higher scores indicating worse sleep quality.
- **Objective sleep indices:** Participants engaged in actigraphic data collection for 7 days concurrently with sleep diary entries.
- **Comorbid chronic conditions:** A single self-report item asking participants to report the number of chronic conditions they suffer from.
- **Daily discrimination:** Participants were additionally asked to rate the extent to which their discrimination experiences contributed to hardship and interference in their daily lives. Responses are made on a Likert scale from 1 (a lot/often) to 4 (not at all/never), with higher scores indicating less experience of daily discrimination.

Table 1. Descriptive statistics and bivariate correlations of study variables.

Variables	M (SD)	1.	2.	3.	4.	5.	6.	7.	8.
1. Age	57.32(11.55)	--							
2. #CCHCs	2.46 (2.59)	.09**	--						
3. DailyDisc	12.78(4.44)	-.18**	.15**	--					
4. Interfere	3.66(.67)	.11**	-.14**	-.42**	--				
5. Hardship	3.60(.72)	.10*	-.15**	-.46**	.81**	--			
6. MDiarySQ	2.40(.76)	-.12*	.18**	.26**	-.16*	-.24**	--		
7. MTSTwatch	371.77(65.07)	.04	-.04	-.09	.11	.13	-.06	--	
8.GlobalSQ	6.23(3.68)	-.08**	.36**	.23**	-.15**	-.17**	.52**	-.11*	--

Note: CCHC= comorbid chronic health conditions, DailyDisc=Daily Discrimination, SQ=sleep quality, TST=total sleep time; ** $p \leq .01$; * $p \leq .05$

Methods

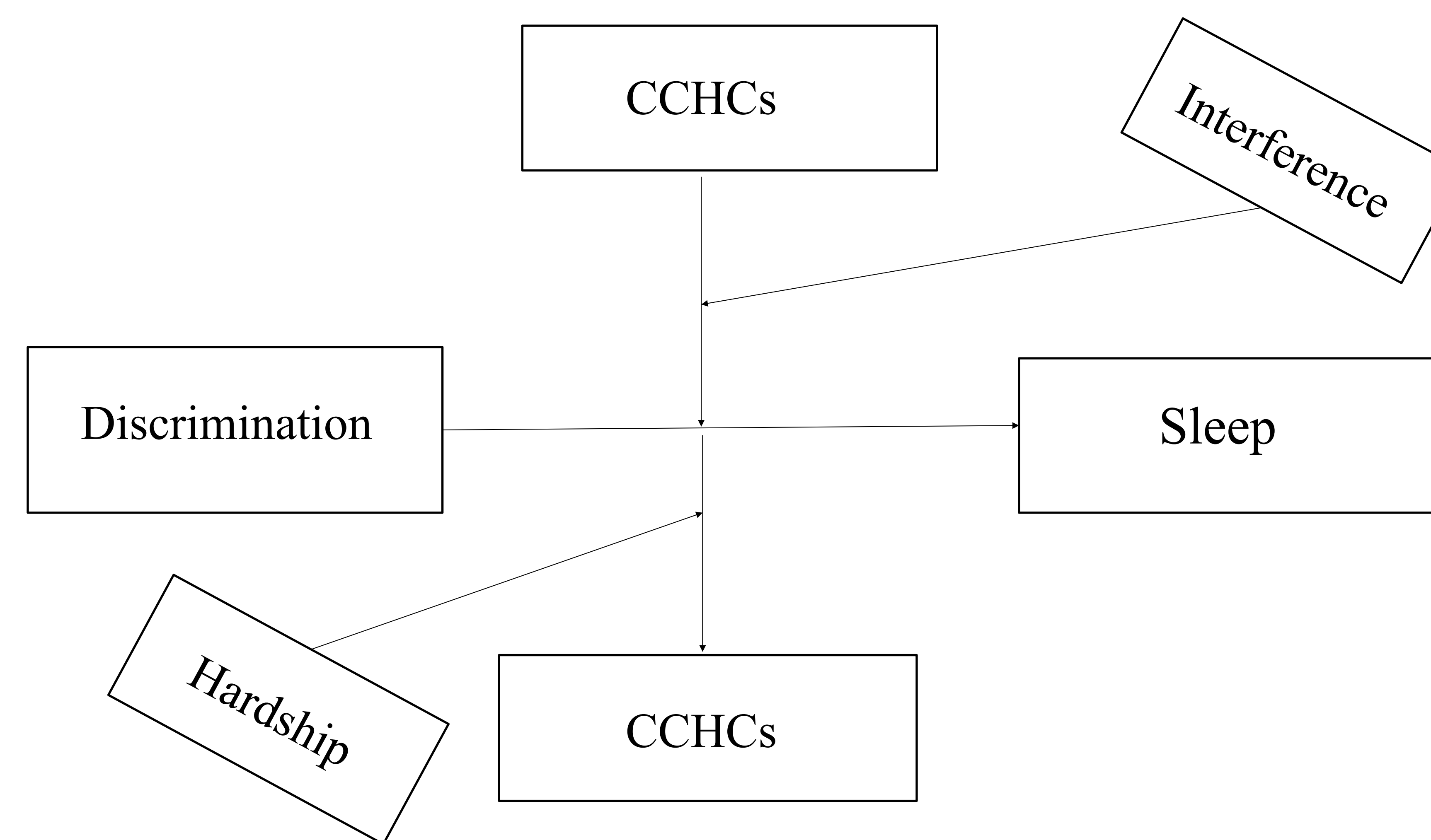


Figure 1. Conceptual moderated-moderation model of interference/hardship on discrimination and sleep outcomes (TST, diary sleep quality, global sleep quality).

Note: Age and gender were utilized as covariates in Hayes' (2018) PROCESS mediation analyses.

Results

- **H1:** Higher disease comorbidity exacerbated the association between daily discrimination and TST ($b=37.07, p<.05, 95\% CI=5.40, 68.75$), diary sleep quality ($b=.35, p<.01, 95\% CI=.13, .58$), and global sleep quality ($b=.76, p<.01, 95\% CI=.29, 1.23$).
- **H2:** The association between chronic disease comorbidity and TST was further strengthened by perceived hardship ($b=-2.07, p<.05, 95\% CI=-3.75,-.40$) and interference ($b=-1.98, p<.05, 95\% CI=-3.65, -.30$).
- The number of CCHCs, qualified by perceived hardship ($b=.02, p<.05, 95\% CI=.00,.04$) and interference ($b=.03, p<.01, 95\% CI=.01,.05$) predicted diary sleep quality above discrimination alone.
- The interaction between CCHCs and hardship also predicted global sleep quality scores beyond discrimination ($b=.04, p<.01, 95\% CI=.02, .07$).

Conclusions & Future Directions

- Daily experiences of discrimination are associated with decreased TST and worse subjective sleep quality.
- These associations were stronger for individuals reporting higher levels of CCHCs.
- The exacerbating effects of health conditions were further augmented by perceptions of interference and hardships as the result of experiencing daily discrimination.
- This suggests the potential presence of individual differences in emotion regulation strategies.
- As such, future research should explore how, and by which mechanisms, differential responding toward discrimination, such as emotion regulation strategy use, by individuals with CCHCs impacts sleep outcomes.

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