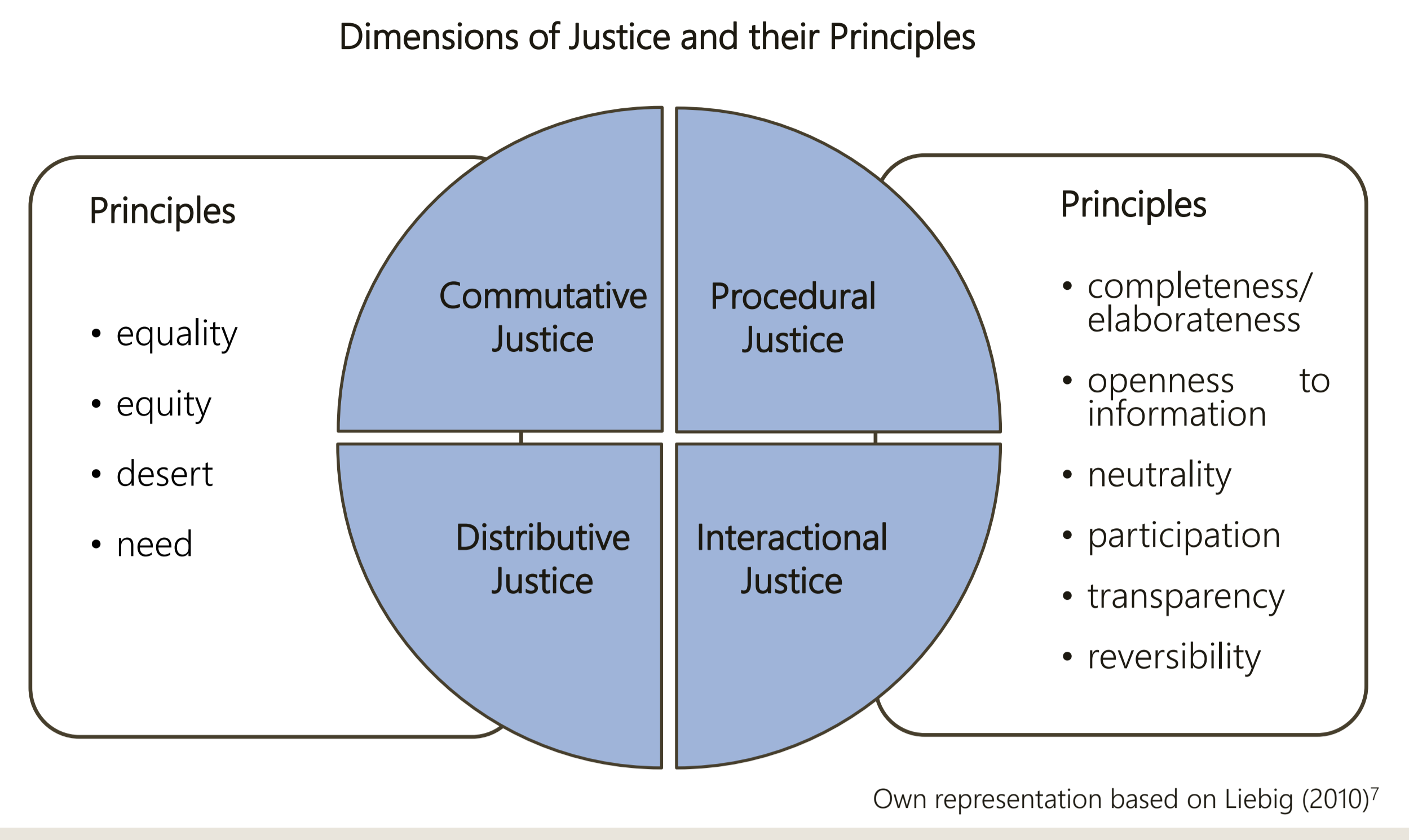


BACKGROUND

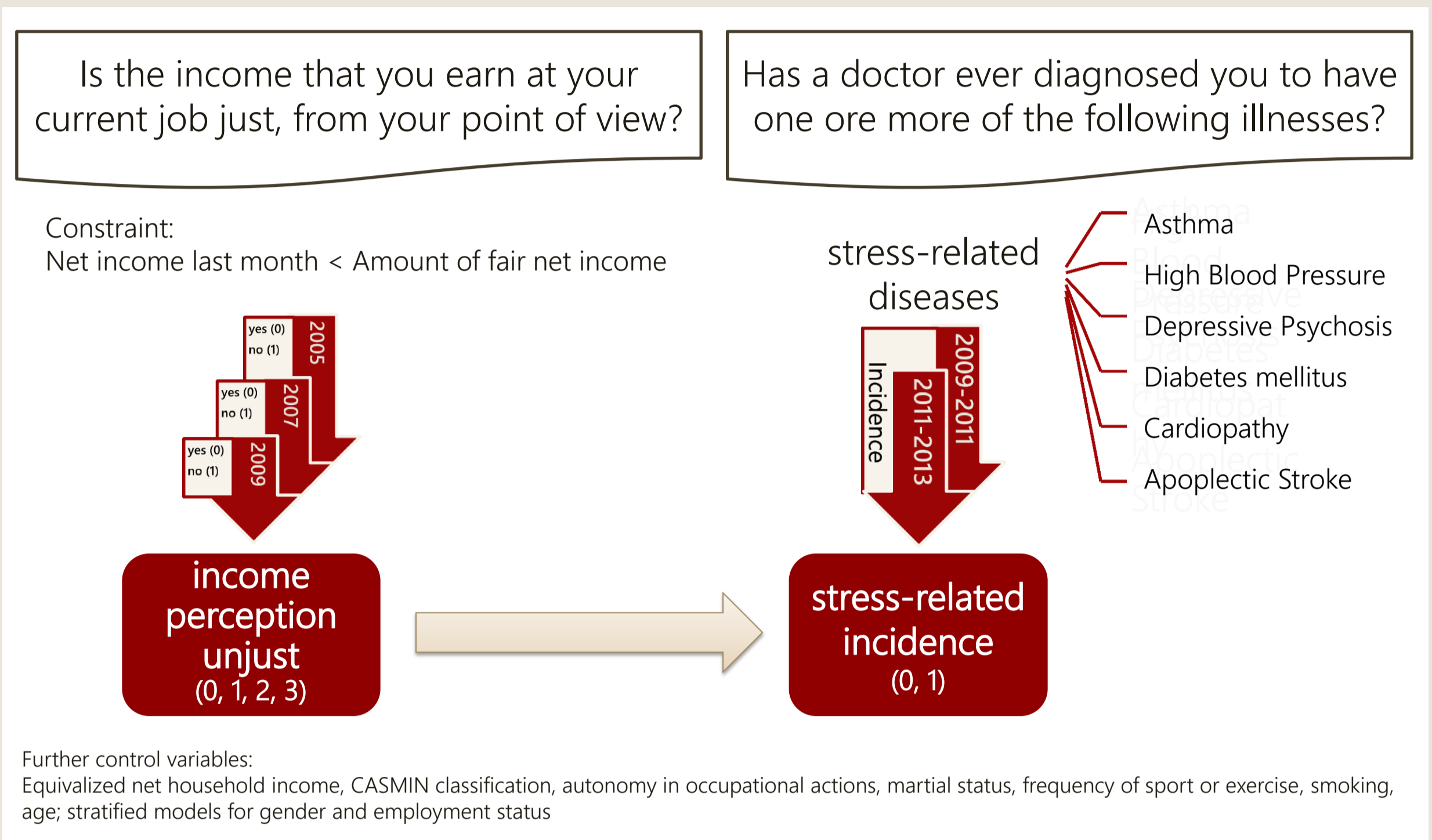
There are congruencies between the dimensions of justice and determinants of theoretical stress models. In the context of the Effort-Reward-Imbalance Model¹, the Job-Demand-Support Model² and the Model of Organizational Justice^{3,4} was revealed that perceived injustice is psychosocial strain. Regarding the justice evaluation of the income stress-causing unjust perceptions can be generated by:

- an inappropriate exchange
- an inadequate distribution
- a nontransparent procedure
- an unfair interaction

The physiological stress response is considered as a link between the relation of unjust perceptions and stress associated diseases^{5,6}. The aim of the study to identify the influence of subjectively perceived income injustice on stress-related diseases taking into account of the load duration.



Own representation based on Liebig (2010)⁷



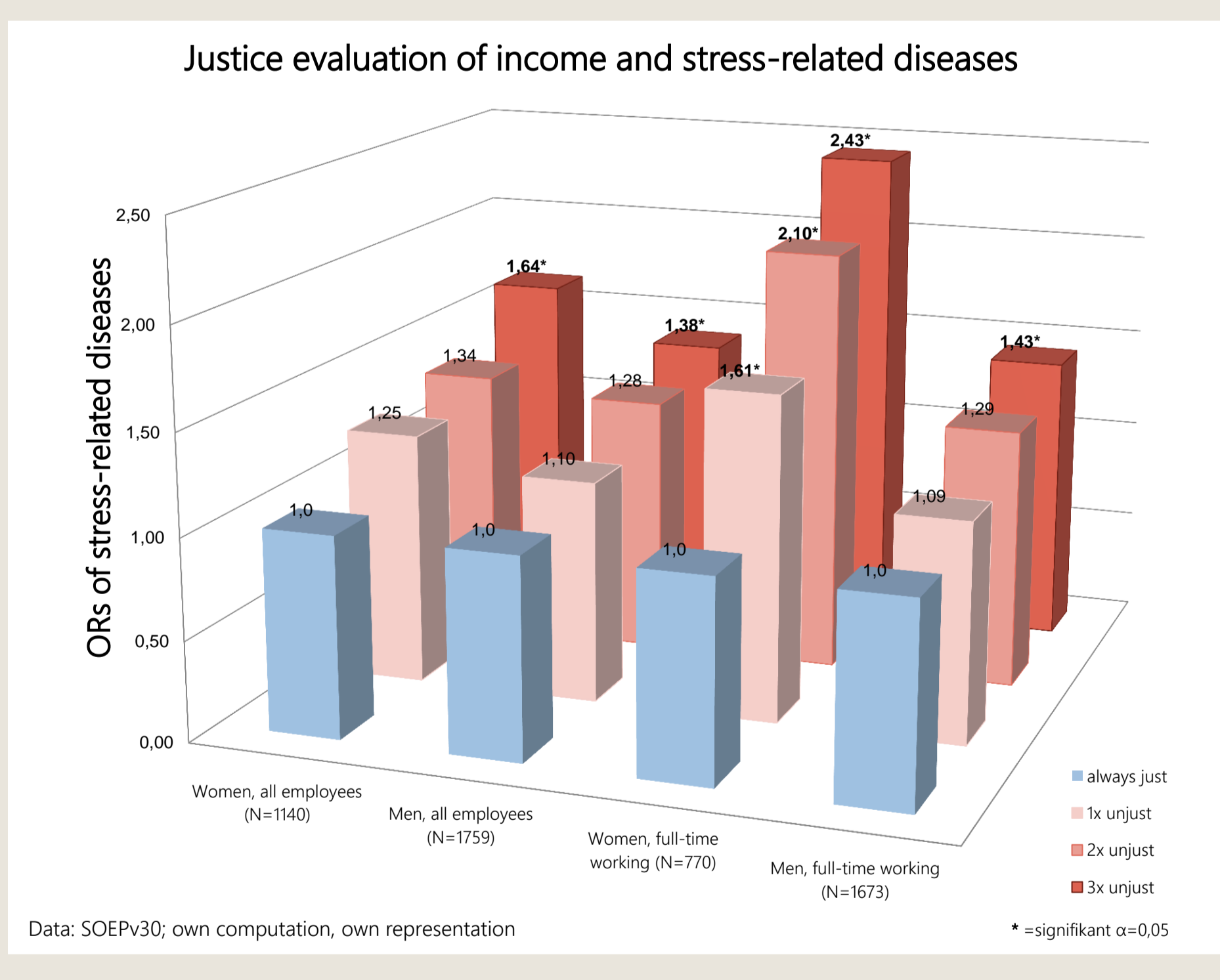
METHODS

Based on the German Socio-Economic Panel Study, data from 5657 workers in the survey years 2005 to 2013 has been analyzed. The dependent variable is an index made up of the doctor's diagnosed new cases of diabetes, asthma, cardiopathy, stroke, hypertension and depression in the years 2009 to 2013. For these diseases a connection can be assumed with stress. The key predictor is the injustice perception of the own income. To operationalize the duration of the injustice perception, the values of the variables of the years 2005, 2007 and 2009 have been accumulated: the more often the income was evaluated as unjust, the higher is the value of the variable. Using logit models factors were identified that affect the probability of stress-related diseases. There were performed gender separated analyzes and analyzes that involved only full-time employees.

RESULTS

The more often the income is assessed as unjust, the higher is the risk of stress-related diseases. Employees who perceive their income as unjustly low in two times of enquiry, indicate significantly heightened stress diseases (OR 1.28 95% CI 1.02 to 1.60). Respondents who perceive their income as unjustly low at three times of enquiry, showed an even higher risk of stress diseases (OR 1.47 95% CI 1.17 to 1.85). Odds ratios for employees working full-time show an increased risk in both groups. In addition there are gender specific effects. Women who perceive their income as unjust over 5 years are stronger affected (OR 1.64 95% CI 1.17 to 2.30) compared to men (OR 1.38 95% CI 1.002 to 1.90). Women working full-time seem particularly concerned. In this subgroup significantly heightened ORs arise even by only one income evaluation as unjust (OR 1.61 95% CI 1.04 to 2.48). Furthermore, regular physical activity seems to be a highly effective protective factor against stress related diseases in men.

	All employees			Full-time employees		
	Total	Women	Men	Total	Women	Men
	95% OR CI	95% OR CI	95% OR CI	95% OR CI	95% OR CI	95% OR CI
Justice evaluation of income						
always just (R)						
1x unjust	1,16 0,94 1,42	1,25 0,92 1,69	1,10 0,83 1,45	1,21 0,95 1,53	1,61 1,04 2,48	1,06 0,82 1,45
2x unjust	1,28 1,02 1,60	1,34 0,96 1,88	1,28 0,94 1,73	1,49 1,16 1,92	2,11 1,34 3,32	1,29 0,95 1,76
3x unjust	1,47 1,17 1,85	1,64 1,17 2,30	1,38 1,002 1,90	1,70 1,31 2,22	2,43 1,54 3,84	1,43 1,03 1,98
Vocational education (CASMIN)						
low	1,58 1,23 2,03	1,71 1,15 2,54	1,46 1,05 2,03	1,68 1,26 2,23	1,94 1,21 3,36	1,58 1,12 2,21
medium	1,42 1,14 1,76	1,50 1,08 2,08	1,32 0,98 1,76	1,50 1,18 1,91	1,83 1,19 2,81	1,34 0,99 1,81
high (R)						
Autonomy in occupational actions						
low	0,86 0,67 1,10	1,19 0,78 1,80	0,73 0,53 0,99	0,67 0,51 0,89	0,75 0,43 1,32	0,66 0,48 0,91
medium	0,98 0,79 1,22	1,14 0,79 1,63	0,95 0,71 1,27	0,89 0,70 1,14	0,88 0,56 1,37	0,93 0,69 1,26
high (R)						
Marital status						
other status	1,18 0,99 1,40	1,22 0,95 1,56	1,19 0,94 1,50	1,16 0,95 1,41	1,13 0,81 1,60	1,19 0,94 1,52
married (R)						
Sport or exercise						
never	1,41 1,16 1,71	1,22 0,91 1,62	1,59 1,21 2,08	1,47 1,17 1,84	1,21 0,80 1,83	1,58 1,20 2,09
moderate	1,29 1,07 1,55	1,09 0,83 1,45	1,47 1,14 1,89	1,33 1,07 1,65	1,05 0,70 1,56	1,48 1,14 1,91
regular (R)						
Smoking*						
yes	1,05 0,89 1,24	0,96 0,75 1,24	1,11 0,88 1,38	1,06 0,87 1,27	1,01 0,71 1,42	1,07 0,85 1,34
no (R)						
Age	1,06 1,05 1,07	1,05 1,04 1,07	1,06 1,05 1,07	1,06 1,05 1,07	1,05 1,03 1,07	1,06 1,04 1,07
Equalized net hh-income/100€	0,995 0,99 1,00	0,997 0,99 1,01	0,993 0,98 1,01	0,99 0,98 1,00	0,990 0,97 1,01	0,993 0,98 1,01
Sex						
men	1,02 0,87 1,20			1,11 0,91 1,35		
women (R)						
R ² Nagelkerke	,087	,083	0,099	,099	,117	,098
Sample	3199	1440	1759	2443	770	1673

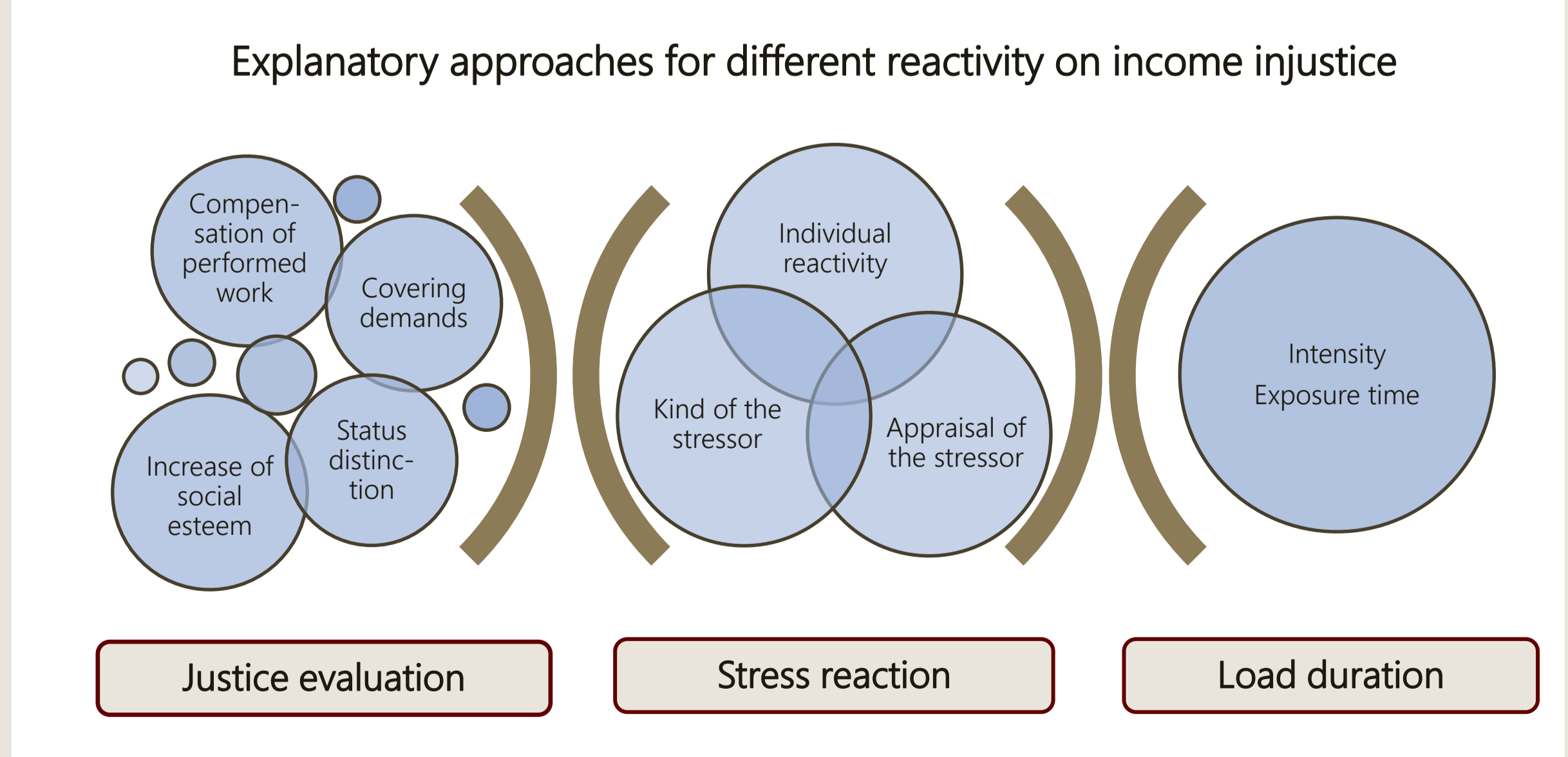


DISCUSSION

Perceived income injustice reveals to be a significant risk factor for stress-related diseases within a dose-response-relationship with increasing duration of exposure. Results of stress research indicate that this reflects the 'allostatic load'⁸. Gender specific differences in stress reaction and a different appraisal of stress factors might explain the higher reactivity of women which even arises by shortly load duration. In addition women possibly attach more value to justice than men. The stronger effects in the groups of employees working full-time might be explain by a higher importance of the effort-reward-balance due to a longer time spent at work within the meaning of exposure time.

CONCLUSIONS

Disputes concerning justice are evitable. However there are possibilities to decrease injustice perceptions. Measures are seen in wage calculation procedures based on fairness rules particularly transparency and sufficient information concerning the creation of gratifications. Furthermore, material and nonmaterial participation systems might promote justice perceptions. The study has some limitations. Assumed congruencies between justice perceptions and stress models are based on theoretical conclusions. Another shortcoming caused by the construction of the dependent variable is that only a generally relation between injustice perception and stress-related disease can be displayed. Disease-specific analyzes possibly would show other gender effects. Furthermore the gender-specific use of medical services could have caused an overassessment of the gender-differences.



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