



Impact of Anxiety and/or Depressive Disorders and Chronic Somatic Diseases on disability and work impairment



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ABSTRACT

Objective: Anxiety and/or Depressive Disorders (ADDs) and Chronic Somatic Diseases (CSDs) are associated with substantial levels of health-related disability and work impairment. However, it is unclear whether comorbid ADDs and CSDs additively affect functional outcomes. This paper examines the impact of ADDs, CSDs, and their comorbidity on disability, work absenteeism and presenteeism.

Methods: Baseline data from the Netherlands Study of Depression and Anxiety (n = 2371) were used. We assessed presence of current ADDs (using psychiatric interviews, CIDI) and presence of self-reported CSDs. Outcome measures were disability scores (WHO-DAS II questionnaire, overall and domain-specific), work absenteeism (≤ 2 weeks and > 2 weeks; TiC-P) and presenteeism (reduced and impaired work performance; TiC-P). We conducted multivariate regression analyses adjusted for socio-demographics.

Results: Both ADDs and CSDs significantly and independently impact total disability, but the impact was substantially larger for ADDs (main effect unstandardized $\beta = 20.1$, $p < .001$) than for CSDs (main effect unstandardized $\beta = 3.88$, $p < .001$). There was a positive interaction between ADDs and CSDs on disability (unstandardized β interaction = 4.06, $p = .004$). Although CSDs also induce absenteeism (OR for extended absenteeism = 1.42, $p = .015$) and presenteeism (OR for impaired work performance = 1.42, $p = .013$), associations with ADDs were stronger (OR for extended absenteeism = 6.64, $p < .001$; OR for impaired work performance = 7.51, $p < .001$). **Conclusion:** Both CSDs and ADDs cause substantial disability, work absenteeism and presenteeism, but the impact of ADDs far exceeds that of CSDs. CSDs and ADDs interact synergistically on disability, thereby bolstering the current view that patients with physical mental comorbidity (PM-comorbidity) form a severe subgroup with an unfavourable prognosis.

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1. Introduction

Disability and work impairment are important indicators of poor health, from both a societal and a clinical perspective [1,2]. Those with Anxiety and/or Depressive Disorders (ADDs; either Anxiety Disorders or Depressive Disorders) or Chronic Somatic Diseases (CSDs) are known to suffer from many years lived with disability (YLD) [3–5]. Globally, YLD are highest in low back pain, with other CSDs such as iron deficiency anaemia, other musculoskeletal disorders, lung disease, migraine, and diabetes among the top ten most disabling diseases. Among the ADDs, Depressive Disorders ranked second and Anxiety Disorders ranked sixth [5]. Those with CSDs and ADDs also suffer from substantial levels of work impairment [1,3,6]. However, CSDs and ADDs were found to frequently co-occur: a phenomenon referred to as physical mental comorbidity (PM-comorbidity) [3,6–8]. Among those with

ADDs, higher incidences of lung disease, diabetes, obesity, cardiovascular diseases, hypertension, stroke, Alzheimer's disease, peptic ulcers, symptoms of Irritable Bowel Syndrome, and osteoarthritis have been found [7,9]. Likewise, higher incidences of ADDs were found among those with lung diseases, hypertension, allergies, peptic ulcers, autoimmune disease, thyroid disease, chronic back problems, osteoarthritis, and migraine [6,8,10,11]. Therefore, it is evident that a wide variety of CSDs form PM-comorbidity with ADDs. The current literature on PM-comorbidity suggests that it forms a relevant subgroup characterized by a worse prognosis with regard to several clinical outcome measures, including functional outcomes [4,6,11] and less favourable CSD-related treatment response [12–14]. Despite the known separate impact of CSDs and ADDs on disability and work impairment, the high prevalence of PM-comorbidity, and its associations with unfavourable health-related outcomes, little is known of the effect of PM-comorbidity on disability and work impairment.

A number of studies on disability found that comorbidity with ADDs increased disability associated with CSDs [3,15]. Both Armenian and Stein assessed interaction effects between CSDs and ADDs on disability, but whereas Armenian found an interaction effect, Stein did not [15,16].

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However, these studies included a limited number of CSDs, and separate interaction effects for specific CSDs or specific disability domains were not reported. With regard to work impairment, a number of studies found increased work impairment in those with PM-comorbidity, compared to those with either ADDs or CSDs alone [6,11,17,18]. Kessler et al. [6] and Buist-Bouwman et al. [11] found interaction effects between ADDs and CSDs on work impairment. However, the latter studies only included a limited number of CSDs and assessed absenteeism (absence from work due to health issues) but not presenteeism (presence at work while hindered by health issues), while presenteeism is regarded a highly prevalent and costly form of work impairment [19,20]. These inconclusive findings warrant further research to clarify the nature of associations of CSDs, ADDs, and PM-comorbidity with regard to disability, work absenteeism and presenteeism.

1.1. Aims of the study

We aim to expand on the current literature by studying severity of disability, work absenteeism and presenteeism associated with Anxiety and/or Depressive Disorders (ADDs), Chronic Somatic Diseases (CSDs) and their comorbidity in a wide range of CSDs. This paper examines the relative separate effects of CSDs and ADDs on total disability, disability domains, work absenteeism and presenteeism. In addition to the separate effects, we will assess whether synergistic effects (i.e. positive interaction effects) between CSDs and ADDs exist. We expect ADDs and CSDs to have substantial separate main effects on disability and work impairment, and expect a positive interaction effect in those with PM-comorbidity.

2. Method

2.1. Design and sample

Respondents were derived from the Netherlands Study of Depression and Anxiety (NESDA), an ongoing cohort study consisting of 2981 respondents (aged 18–65) at baseline. Since the aim of NESDA is to gain insight into the long-term course and consequences of Anxiety and Depressive Disorders, those with Anxiety Disorders or Depressive Disorders were oversampled. NESDA recruitment took place in three settings: community, primary care, and specialized mental health care, in order to represent all developmental stages of ADDs. Exclusion criteria included a primary diagnosis of other psychiatric disorders, such as bipolar, obsessive-compulsive, substance use or psychotic disorders and insufficient command of the Dutch language. Baseline assessments were conducted between 2004 and 2007 and included a structured diagnostic psychiatric interview. A full description of the NESDA study design is available elsewhere [21]. The Ethical Committee of participating universities approved of the study protocol and all respondents provided written informed consent. The current study uses the baseline data and included persons with presence of current (i.e. six-month) ADDs ($n = 1737$), and controls without current and lifetime presence of ADDs ($n = 634$). We excluded 610 respondents due to presence of lifetime, but not current, diagnoses of ADDs.

2.2. Anxiety and/or Depressive Disorders (ADDs)

ADDs were defined as presence of either a Depressive Disorder (Depressive or Dysthymic Disorder) or an Anxiety Disorder (Generalized Anxiety Disorder, Social Phobia, Panic Disorder with or without Agoraphobia). We assessed Depressive and Anxiety Disorders combined since both groups of disorders are associated with increased disability [3–5] and comorbidity levels between these disorders are known to be high in other studies [22] but also in our own study [23]. Presence of ADDs was assessed using the Composite International Diagnostic Interview (CIDI, version 2.1), which classifies diagnoses according to DSM-IV criteria (American Psychiatric Association, 2001; World Health

Organization, 1998) [37,38]. The CIDI has good overall reliability and validity and is frequently used worldwide [24]. The structured CIDI interviews were conducted by highly trained staff.

2.3. Chronic Somatic Diseases (CSDs)

A 21-item face-to-face interview was used to assess presence of CSDs [21]. This instrument was used previously in large-scale population-based cohort studies [6,11,25]. Respondents were asked for presence of 30 CSDs and were able to report any additional CSDs they may have. Individual CSDs were deemed present when respondents reported monitoring or receiving prescription medication by a General Practitioner or a medical specialist for that CSD. Following earlier research [26], we clustered separate CSDs into seven disease categories: respiratory, cardio-metabolic, musculoskeletal, gastrointestinal, neurological, endocrine and cancer. We used presence of any CSD and presence of each CSD category as outcome measures.

2.4. Disability

Disability during the previous 30 days was assessed using the WHO-Disability Assessment Schedule (WHO-DAS II), a 36-item self-report questionnaire [27]. It measures disability in six domains: cognition (six items, Cronbach's $\alpha = 0.92$ in our sample), mobility (five items, $\alpha = 0.91$), self-care (four items, $\alpha = 0.84$), interpersonal interactions (five items, $\alpha = 0.88$), household activities (five items, $\alpha = 0.95$), and participation in society (eight items, $\alpha = 0.92$) on a 5-point Likert scale with item scores ranging from 0 (no difficulties) to 4 (extreme difficulties/cannot do). We excluded four items concerning work-related disability, as a substantial proportion of our sample ($n = 905$) was neither currently employed for at least 8 h a week nor attending education. Domain scores were calculated by adding all domain item scores and a total disability score was calculated by adding all 32 item scores. There were 49 respondents with missing data on WHO-DAS data; we replaced missing scores with mean scale values of total scale scores. Domain and total scores were standardized to derive scores ranging from 0 to 100, with higher scores indicating higher levels of disability.

2.5. Work impairment

Work impairment was analysed within a subsample of employed participants, which we defined as having a paid job for at least 8 h a week divided over more than one day a week ($n = 1466$), thereby excluding 905 respondents who were not employed, or who were employed for less than 8 h a week. We excluded another four respondents due to missing values on work impairment data, which yielded a sample of $n = 1462$. We used the Trimbos/iMTA questionnaire for Costs Associated with Psychiatric Illness (TiC-P) to assess two aspects of work impairment: absenteeism and presenteeism [28]. Absenteeism was calculated by dividing the total number of hours that respondents were absent from work during the previous six months by the number of hours that respondents were supposed to work per week. Work absenteeism is measured in weeks and ranges from 0 to 26 weeks. Presenteeism is defined as the number of workweeks in which quality of work was reduced due to health issues, multiplied by a self-reported proportional score for severity of work quality reduction [29]. Presenteeism scores ranged from 0 to 26. As absenteeism and presenteeism data did not meet normality assumptions, we categorized these into 'no absenteeism', 'short absenteeism' (≤ 2 weeks), and 'extended absenteeism' (> 2 weeks); and 'no presenteeism' (score = 0), 'reduced work performance' ($0 < \text{highest quartile}$) and 'impaired work performance' ($> \text{highest quartile}$), as done previously [19,29].

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