

Empirical Articles

Basic human values and sick leave: A study combining two-wave survey data with longitudinal register data

GØRIL KVAMME LØSET,¹  TALE HELLEVIK¹ and TILMANN VON SOEST² 

¹*OsloMet, Oslo Metropolitan University, Oslo, Norway*

²*University of Oslo and OsloMet – Oslo Metropolitan University, Oslo, Norway*

Løset, G. K., Hellevik, T. & T. von Soest (2022). Basic human values and sick leave: A study combining two-wave survey data with longitudinal register data. *Scandinavian Journal of Psychology*.

There is growing recognition that dispositional factors and social norms can predict work absence. Human values have been linked to related concepts, including work commitment and receipt of disability pension; however, there is a lack of research on whether human values are associated with sickness absence. We address this issue by combining survey data from two waves (2007, 2017) of the Norwegian Life-Course, Ageing and Generation Study ($N = 1,330$) with longitudinal register data on sickness absence between survey waves. Stepwise regression analyses showed that, out of Schwartz's 10 basic values, achievement was prospectively associated with higher levels of self-reported sick leave, even when controlling for a variety of potential confounders. Self-direction was also related to higher risk of self-reported sick leave in the adjusted analysis. Conservation values (security and conformity) were related to stricter attitudes toward sick leave when controlling for potential confounders, while stimulation was associated with lenient sick leave attitudes in the adjusted analysis. None of the human values were prospectively associated with longer-term register-based sick leave beyond bivariate correlations. We conclude that broad human values to some extent predict attitudes toward sick leave and self-certified sick leave where persons may vary according to which degree they consider sick leave to be necessary and appropriate, while human values do not predict long-term, physician-certified sickness absence. Future research may examine whether health- or work-specific values have greater explanatory power for sick leave, including long-term sickness absence that is typically more closely linked to more serious health problems.

Key words: human values, attitudes, sickness absence, sick leave, absenteeism, health.

Gøril Kvamme Løset, Norwegian Social Research (NOVA), OsloMet – Oslo Metropolitan University, P.O. Box 4 St. Olavs plass, NO-0130 Oslo, Norway. E-mail: goril.k.loset@oslomet.no.

INTRODUCTION

The economic costs of extensive sick leave are a common concern across industrialized countries (OECD, 2010). Furthermore, long-term sickness absence increases the risk for the individual employee of wage penalty, disability pension, and permanent work life withdrawal (Hultin, Lindholm & Möller, 2012; Markussen, 2012). Understanding the mechanisms behind the variations in sickness absence levels and finding measures that will help reduce the prevalence of sick leave is therefore on the political agenda (Mykletun *et al.*, 2010).

The employee's somatic and mental health condition is considered a key determinant of sick leave behavior. This applies particularly to physician-certified sickness absence of more than 1 week's duration, because such longer-term absence seems to be related to a larger degree to poor health, and to a lesser degree to other psychosocial factors than short-term, self-certified sick leaves (Kivimäki *et al.*, 2003; Marmot, Feeney, Shipley, North & Syme, 1995). However, extensive research has shown that factors not directly related to health also are of importance for sick leave. Such factors include the work environment (Laaksonen, Pitkaniemi, Rahkonen & Lahelma, 2010), family factors (Allebeck & Mastekaasa, 2004; Markussen, Røed, Røgeberg & Gaure, 2011), social support (Miraglia & Johns, 2021) and social norms and interactions (Godøy & Dale-Olsen, 2018). Moreover, previous studies have suggested that dispositional factors such as personality (Løset & von Soest, 2022; Vlasveld *et al.*, 2013) and temperament (Henderson, Hotopf & Leon, 2009) may play a part.

Employees' attitudes and values are emphasized in the scientific literature and public debate as potential sources of variations in sick leave. A previous review article also stated that values deserve more interest in the sickness absence literature (Harrison & Martocchio, 1998). Still, factors in this domain have so far been examined only to a limited extent (Allebeck & Mastekaasa, 2004; Hauge & Ulvestad, 2017). Addressing this lack of research, the present study uses longitudinal survey and register data to examine how human values – defined as overarching, relatively stable, trans-situational ideals or goals that motivate behavioral decisions and modes of conduct (Rohan, 2000; Schwartz, 1992) – are associated with sick leave and attitudes toward sick leave. The study will as such be the first to examine the prospective association of human values with sick leave.

Human values: theory and concepts

By drawing on earlier work within value research, Schwartz and Bilsky (1987) developed the Theory of Basic Human Values in an attempt to map out a universally shared value system. The theory defines values as basic cognitive orientations, broad criteria, or principles that are relevant to guide and justify attitudes and behavior across life domains. In contrast to specific attitudes that are considered evaluations of a particular object or situation, values take the form of global goals for desirable behavior (Schwartz, 2003). Schwartz's theory has identified 10 basic and

motivationally distinct value types that are supported across cultures (Schwartz, 1992, 2003). The values are dynamically integrated and form individual value priorities according to their relative importance, often illustrated as a circular motivational continuum in which values that are close to each other in the circle have more compatible goals while more distant values have more conflicting defining motivations. The circular structure can also be summarized in four higher-order values that form two bipolar value dimensions, *self-enhancement* versus *self-transcendence* and *openness to change* versus *conservation* (Schwartz, 1992; Schwartz *et al.*, 2001).

Self-enhancement comprises the values of *power* and *achievement*, for which social superiority, personal interests, and success are defining motivations. In contrast, *universalism* and *benevolence* are seen as self-transcending values that are concerned with protecting the welfare and interests of others. Openness to change emphasizes the intrinsic interest in novelty and independence of thought, action, and feelings that lies in the values of *stimulation* and *self-direction*. With emphasis on preservation of the past, order, self-moderation, and resistance to change, three basic values – *tradition*, *conformity*, and *security* – form the core value of conservation. The defining goals of the 10th value, *hedonism*, which has motivating elements of both openness to change and self-enhancement, are individual pleasure and sensuous gratification (Bilsky, Janik & Schwartz, 2011; Schwartz, 2012).

Associations between human values, attitudes, and sick leave

According to Schwartz's theory, individuals attempt to act in accordance with their values to achieve consistency between their beliefs and their actions and to increase the likelihood of achieving their preferred goals (e.g., Bardi & Schwartz, 2003). The motivating role of values in behavior is argued to be higher when choice and conscious decision-making are involved (Bardi & Schwartz, 2003; McClelland, 1985). With regard to sick leave behavior, except in cases of serious illness, it seems reasonable to assume that some form of weighing of options will take place whereby the individual's value system may come into play. Indeed, several psychosocial models for sickness absence postulate that motivated behavior, coping strategies, and decision-making are involved in the individual sick leave process (see Bakker & Demerouti, 2007; Henderson, Harvey, Øverland, Mykletun & Hotopf, 2011; Zimmerman, Swider, Woo & Allen, 2016). Assessments of when sick leave is necessary or acceptable may depend on considerations and priorities related to health and key life domains such as work and family and whether sick leave, given the situation, is seen as functional and consistent with a person's values or related goals (Zimmermann *et al.*, 2016).

Basic human values have been associated with a variety of behavioral and attitudinal outcomes in many life areas, for example political activism (Vecchione *et al.*, 2014) and attitudes toward immigration (Davidov, Meulemann, Schwartz & Schmidt, 2014). Human values have also been linked to health, including subjective well-being (Sorthaix & Schwartz, 2017) and mortality (Beller, 2021). Yet, to our knowledge, there is little research on the motivating potential of human values in relation

to sickness absence. However, three studies have examined how human values are related to constructs similar to sickness absence, including workplace commitment (Cohen, 2009), disability pension (an outcome often preceded by long-term sick leave; Blekesaune, 2015), and attitudes toward sick leave (Haugen, Holm, Lundevaller & Westin, 2008). We comment on previous findings below.

From a theoretical point of view, we expect that individuals holding *self-enhancement* values are more likely to have stricter attitudes toward sick leave and less risk of sick leave compared with others because sick leave may be perceived as hindering individual goals of personal success and prestige in the workplace. These expectations are supported by findings showing that *achievement* was related to higher work commitment in a cross-sectional survey study of 424 Israeli employees (average age of 37.5 years; Cohen, 2009) and to reduced risk of disability pension in a Norwegian study of 2,549 respondents, aged 50 to 66 years (Blekesaune, 2015). However, in a study using survey data with prospective register records on mortality for 6,089 German respondents (aged 40–93 years), *power* was linked to an increased mortality risk (Beller, 2021), indicating that these individuals may have a higher risk of sick leave because of ill health. Overall, we suggest that *self-enhancement* is associated with stricter sick leave attitudes, but due to mixed findings with more health-related outcomes, it remains somewhat unclear how *self-enhancement* values and actual sick leave are related.

Self-transcendence values are concerned with being loyal, understanding, protecting of others' well-being, and nurturing close relationships with significant others (Schwartz, 2012), and we therefore expect that these values are related to being tolerant of sick leave. Such a notion is in accordance with the finding that *self-transcendence* values were positively associated with acceptance of sick leave in a cross-sectional survey study including 22,423 Swedish employees who were 20 to 64 years old (Haugen *et al.*, 2008). Still, individuals high in *benevolence* also are shown to be particularly committed to work (Cohen, 2009), which may indicate that they have a higher threshold for sick leave. Thus, even though *self-transcendence* values probably are related to more lenient attitudes toward sick leave in general, *self-transcendence*-oriented individuals may not necessarily be at higher risk for sick leave because of their strong work commitment.

Embracing curiosity, novelty, and independence of thought and action is central to *openness to change* values (Schwartz, 1992). These values are found to be negatively associated with organizational commitment and job involvement (Cohen, 2009), which in turn may lead to a lower threshold for sick leave among those valuing *openness to change*. However, in a large cross-sectional survey study of adults in numerous European countries, *openness to change* values were positively correlated with subjective well-being (high life satisfaction and low depressive affect; Sorthaix & Schwartz, 2017), and *self-direction* has been associated with a decreased mortality risk (Beller, 2021). This suggests that *openness to change*-oriented individuals generally are in good health and should have a lower risk of sick leave. On this basis, we expect *openness to change* to be associated with lenient attitudes toward sick leave, but the relationship to actual sickness absence is more uncertain for these values.

In theory, we would expect individuals who prioritize *conservation* values to have stricter attitudes toward sick leave and a lower risk of sick leave, because moderation, social order, harmony, and keeping a low profile are important to them (Schwartz, 2012) and being absent from work may conflict with these ideals. Yet a previous study found that *conservation* values were negatively correlated with subjective well-being (Sortheix & Schwartz, 2017), which may indicate risk of sick leave due to health reasons. However, research on the relationship between *conservation* and health- and work-related outcomes is sparse, and more research is needed. From a theoretical standpoint, we still anticipate that these values will be associated with a higher threshold for sick leave.

Finally, *hedonism*-oriented individuals are concerned with personal pleasure and enjoyment in life, and they do not appear to be particularly committed to their job or workplace (Cohen, 2009). From this perspective, *hedonism* may be related to less stringent sick leave attitudes and a greater propensity to use sick leave. Research has linked *hedonism* to an increased risk of mortality (Beller, 2021), which could also indicate that people with hedonistic values run a higher risk of sick leave. Nevertheless, *hedonism* has been related to a reduced risk of disability retirement, partly explained by the fact that hedonistic individuals often seem to feel that they are in good health (Blekesaune, 2015). Due to mixed results and sparse research, it is thus not entirely clear how *hedonism* will be linked to sick leave and related attitudes.

Potential confounders of the association between human values and sickness absence

When examining the associations between human values and sick leave, it is important to account for potential confounders that may be related to both human values and sickness absence. Such potential confounders include socioeconomic status (SES), gender, and age, because these sociodemographic factors have been shown to be related to sickness absence in several studies (Barnby, Ercolani & Treble, 2002; Markussen *et al.*, 2011; Mastekaasa & Melsom, 2014). Research further shows that SES, gender, and age tend to correlate with human value priorities (e.g., Schwartz, 2007). Moreover, health status is an important factor since sick leave is certified on the basis of somatic and mental health problems, and research links sickness absence to morbidity and mortality (Kivimäki *et al.*, 2003; Marmot *et al.*, 1995). Some studies additionally show that human values are related to health outcomes and health behavior (Beller, 2021; Nordfjærn & Brunborg, 2015). Work factors are also shown to be associated with sick leave patterns (Laaksonen *et al.*, 2010; Markussen *et al.*, 2011) and differences in attitudes toward sickness absence (Mastekaasa, Dale-Olsen, Hellevik, Løset & Østbakken, 2021), while some studies suggest that family composition is related to sick leave (Allebeck & Mastekaasa, 2004; Markussen *et al.*, 2011; Mastekaasa, 2013). Human value priorities are further theorized to orient choices and investments in central life domains such as work and family (Schwartz, 2003), and they have been found to be associated with, for example, the likelihood of being self-employed

(Morales, Holtschlag, Masuda & Marquina, 2019) and attitudes toward voluntary childlessness (Merz & Liefbroer, 2012).

The national context

Norway's labor market is characterized by relatively low unemployment, high labor force participation, and a high sickness absence rate compared with many other countries, including its neighbours in Northern Europe (OECD, 2019). In large part owing to prevailing support for the welfare state and trade unions, Norway also has a generous sickness benefit system. Self-certification is valid for the first three absence days up to four times a year. For longer spells, the employer usually finances the first 16 calendar days of absence, whereas the Norwegian National Insurance Scheme provides sickness benefits when the employer-covered period expires (Hagelund, 2014). The sickness benefit replacement rate of wages is 100%, up to a ceiling of six times the public pension base rate (approximately 600,000 NOK), from the first day and up to 1 year of sick leave (Markussen *et al.*, 2011). Employers often supplement the remaining wage if it exceeds the fixed ceiling. With better wage compensation for sick leave than in many other countries, the Norwegian context may also be particularly interesting for studying incentives for sickness absence that are not economically driven (Godøy & Dale-Olsen, 2018).

The present study

The aim of the present study is to examine the prospective association of human values with attitudes toward sickness absence and the risk of sickness absence among Norwegian employees, even when accounting for a variety of potential confounders. Based on previous work, we hypothesize that values related to *self-enhancement* and *conservation* overall are negatively associated with tolerant sick leave attitudes, and that *conservation* is related to a lower risk of sick leave, whereas we do not have an a priori prediction of the association between *self-enhancement* and the risk of sick leave. We further hypothesize that *openness to change* and *self-transcendence* values are positively associated with tolerant attitudes toward sick leave, and that *self-transcendence* values are associated with a higher risk of sick leave. Due to mixed findings, no hypothesis concerning the relationship between *hedonism* and sick leave and attitudes toward sick leave is proposed.

METHOD

Study procedure and participants

We use two waves from the Norwegian Life-Course, Ageing and Generation Study (NorLAG). Statistics Norway collected the data, in collaboration with Norwegian Social Research, through telephone interviews and follow-up self-completion questionnaires. The first wave of data collection in NorLAG was conducted in 2002 (T1) with a sample of individuals born between 1922 and 1961, stratified by age and gender, in 30 municipalities and urban districts in Norway ($N = 5,555$). In the second wave of NorLAG in 2007 (T2), the gross sample from T1 was supplemented with refreshment samples for those born between 1922 and 1961 and a set of younger birth cohorts (1962–1966). The sampling at T2

was further expanded to seven geographical regions covering the whole of Norway, and the sample was stratified by gender, age, geographical region, and municipal centrality. T2 accordingly comprises a sample of 9,238 interviewees (born 1922–1966, aged 40–85 years) with a response rate of 61%, and 77% of the respondents also completed the questionnaire (overall response rate of 47%; Veenstra *et al.*, 2021).

The third round of NorLAG (T3) was carried out in 2017. Eligible participants at T3 were born between 1922 and 1966 and had participated in at least one of the two prior survey waves. The net sample covered 6,099 interviewees between the ages of 50 and 95 (68% response rate), and 73% of these individuals completed the questionnaire (overall response rate of 50%). Both study participation and the linkage of individual survey data with data from national administrative registers were based on informed consent (see Veenstra *et al.*, 2021, for a more detailed account of the NorLAG study design).

Non-response bias was generally small, but non-responders more often had only basic education, which resulted in a modest overrepresentation of respondents with higher education (university college or higher) at both T2 and T3. Moreover, respondents with good self-rated health and higher education were more inclined to participate in multiple survey waves (Veenstra *et al.*, 2021). NorLAG data are available for research purposes from the Norwegian Centre for Research Data (NorLAG, 2021). In the following, T2 and T3 will be referred to as baseline and follow-up, respectively.

To study the relationship between values, sick leave attitudes, and sickness absence, we selected baseline respondents that had participated at follow-up ($n = 5,711$), because information on attitudes was available only at follow-up. Moreover, to be eligible for sick leave, respondents needed to be employed, not self-employed, in both study waves ($n = 3,748$ baseline; $n = 2,272$ follow-up) and earning an annual minimum of 50% of the public pension base rate (around 40,000 NOK) during the whole 10-year period ($n = 2,104$). Respondents also needed to be below 67 years old at follow-up to be entitled to sick leave during the whole study period ($n = 1,989$). The respondents additionally needed to have filled out the questionnaire in both survey waves ($n = 1,624$ baseline; $n = 1,330$ follow-up). The final study sample thus comprised 1,330 individuals aged 40 to 57 years at baseline.

Comparing the sample of study respondents who only participated in the interviews in both study waves with that of those who also filled out the questionnaire in both waves showed that the latter respondents were slightly older ($t = 2.57$, $p = 0.011$; 47.5 years versus 46.6 years) and more likely to be female ($\chi^2 = 30.2$, $df = 1$, $p < 0.001$), but the groups did not significantly differ in terms of educational level, self-rated health, or the prevalence of sick leave between survey waves ($p > 0.05$).

Measures

Sickness absence. Information on self-reported sick leave was derived from the telephone interview at follow-up by asking whether respondents had been absent from work because of their own illness in the past 12 months (no = 0; yes = 1). Data on register-based sickness absence were extracted from Statistics Norway's nationwide Historical Event Database and linked to individual survey data. These data concern the length of sickness benefit for physician-certified sickness absence that the employee received from the Norwegian National Insurance Scheme (excluding the 16-day employer period). The records cover the annual sum of sick leave days between the two survey waves (2008–2016). Register data available did not contain more detailed information about sickness absence than annual sum of sickness absence days, such as number of absence spells per year or reasons for sickness absence. The data were collapsed into a dummy variable indicating whether the respondent had register-based sick leave between baseline and follow-up (no = 0; yes = 1). We additionally used register-based sick leave in the year before baseline (2006) as a control for previous sick leave (no = 0; yes = 1).

Attitudes toward sickness absence. We employed an eight-item measure of attitudes toward sickness absence at follow-up, modeled after items used in the Norwegian Monitor Survey (Ipsos MMI, 2015). The items were introduced by the phrase “For how long do you think it is

acceptable to be on sick leave for the following reasons . . . ?,” with items covering reasons for sick leave such as stress at work, exhaustion, and moderate symptoms of illness (see Table A1 for an overview of all items). Response categories were *no reason for sick leave* (0), *sick leave for 1–3 days* (1), *up to 2 weeks of sick leave* (1), *up to 4 weeks of sick leave* (1), and *more than 4 weeks of sick leave* (1), in addition to *do not know*, which was treated as a missing response. The items were combined into an attitude index indicating the mean number of reasons respondents considered a sick leave of at least 1 to 3 days to be reasonable. Cases with missing responses on more than four attitude items were not included in the index ($n = 144$). The scale showed adequate internal consistency ($\alpha = 0.67$).

Human values. The Human Values Scale (HVS), a 21-item version of the Portrait Values Questionnaire (PVQ), developed for the European Social Survey (ESS), was applied to assess values at baseline (Schwartz, 2003; Schwartz *et al.*, 2001). A few adjustments were made to the HVS scale to adapt it more to the cultural context of the NorLAG study. Accordingly, gender-neutral items, rather than items addressed according to the respondent's gender, were used, and one phrase described each item, as opposed to two in the original HVS. Moreover, one of the items that measured *security* in the HVS was replaced with another *security* item from the original PVQ (Schwartz *et al.*, 2001) to further adapt the scale to the Norwegian context (Table A2 gives an overview of the items in the revised version of the HVS used in the present study).

Two items (three items for *universalism*) measured each of the 10 values through short verbal portraits featuring a hypothetical person, which described central goals and aspirations to the value (Schwartz, 2003). All items were introduced by the phrase “It is important to this person . . . ,” and respondents rated how similar the person was to himself or herself with the response categories *very much like me* (1), *like me* (2), *somewhat like me* (3), *a little like me* (4), *not like me* (5), and *not like me at all* (6). Scores were mean centered to correct for individual differences in scale use, as suggested by Schwartz (2010); hence, scores indicated the relative importance of each value in the respondent's value system. Reliability scores for each human value ranged from 0.36 to 0.70 with an average of 0.54 (power: $\alpha = 0.39$; achievement: $\alpha = 0.55$; hedonism: $\alpha = 0.67$; stimulation: $\alpha = 0.70$; self-direction: $\alpha = 0.36$; universalism: $\alpha = 0.62$; benevolence: $\alpha = 0.68$; security: $\alpha = 0.46$; tradition: $\alpha = 0.37$; conformity: $\alpha = 0.64$). The low to moderate reliability scores were expected and reflect that few relatively heterogeneous items were chosen to capture the conceptual breadth of each value type (Schwartz, 2003). The HVS is a well-established instrument that has been part of the biennial ESS study since 2002. The scale has demonstrated adequate validity across many samples from different countries and cultures (Schwartz, 2003, 2007).

Health and sociodemographic data. Self-rated health was measured by a single interview item in which respondents were asked to rate their health for the moment as *excellent*, *very good*, *good*, *moderately good*, or *poor*. The item was coded into a dichotomous variable (poor or moderately good health = 0; good, very good, or excellent health = 1). A combination of interview data and register records provided information about whether the respondent was sharing the household with a partner (no = 0; yes = 1) or living with dependent children, operationalized as children below 11 years old (no = 0; yes = 1). Work factors comprised whether the respondent's main work was classified as private (0) or public sector (1) employment, whether work was part-time (below 37 working hours a week; 0) or full-time (1), and whether the work position involved coordinator or managerial responsibilities (no = 0; yes = 1). Other sociodemographic control variables included gender (male = 0; female = 1) and age. Also, gross income (in 10,000 NOK units) and level of education (no university or college education = 0; university or college education = 1) were assessed. All these measures were obtained at baseline.

Statistical procedure

A series of stepwise linear regression analyses, in which we step-by-step introduced study variables in the analyses, served to investigate whether human values at baseline were related to attitudes toward sickness absence

at follow-up. We conducted separate analyses for each human value. First, we examined unadjusted bivariate associations between the human value and sick leave attitudes. Second, we controlled for age and gender. Third, we included all the remaining control variables except for register-based sick leave in the year prior to baseline, which was introduced in the fourth and final step. The same analytic approach was used when predicting self-reported sick leave at follow-up and register-based sickness absence between baseline and follow-up. For these outcomes, logistic regression analyses were used.

RESULTS

Descriptive statistics

The mean age of the 1,330 respondents was 47.65 ($SD = 4.42$; range 40–57) at baseline (see Table 1). Women were overrepresented in the sample (55.9%), and almost half the sample had higher education (47.9%). Relatively few respondents had younger children in the household (23.1%), whereas the large majority were living with a partner (82.0%). Moreover, most respondents were full-time employees (83.2%), about half of the sample had jobs in the public sector, and 54.1% had managerial jobs. Mean income was about 460,000 NOK. The bulk of the respondents considered themselves to be in good health (89.4%), and 16.7% had register-based sick leave the year prior to baseline. According to register records, 60.3% had sick leave between baseline and follow-up, and 45.9% reported having had sick leave in the year prior to follow-up. Mean score on the sick leave attitude index was 0.64, indicating that the respondents on average supported sick leave more often than not. Women generally had higher levels of sickness absence as well as more lenient attitudes toward sickness absence. We did not find a significant gender difference in self-rated health. Mean centered human values scores further showed that men on average

scored higher on *self-enhancement* and *openness to change* values than women, and that women rated *self-transcendence* values, *security*, and *conformity* higher than men. Men also seemed to value *tradition* slightly more than women, whereas women seemed to value *hedonism* slightly more than men.

Table 2 showed small to medium-sized positive intercorrelations of attitudes toward sick leave and self-reported and register-based sick leave. Moreover, correlations in Table 2 showed that human values forming the same higher order core value were, for the most part, moderately correlated with each other. *Hedonism* was negatively correlated with *self-enhancement* values and with *self-direction*, but not significantly correlated with *stimulation*. Education was positively correlated with *universalism*, *self-enhancement*, and *openness to change* values and negatively correlated with *conservation* values, whereas age displayed few correlations with human values. Both work hours and work position were positively associated with *self-enhancement* and *openness to change* values and negatively associated with *self-transcendence* and *conservation* values. No human values were significantly associated with self-rated health.

Associations of human values with sickness absence and attitudes toward sickness absence

Table 3 shows the results from linear regression models with attitudes toward sickness absence at follow-up as outcome. In Step 1, without control for other variables, none of the human values were significantly related to attitudes. However, when controlling for gender and age in Step 2, *security* was negatively related to attitudes, and the association remained statistically

Table 1. Descriptive statistics for the total study sample and by gender

Variable	Total sample ($N = 1,330$)		Men ($n = 586$; 44.1%)		Women ($n = 744$; 55.9%)	
	n (%)	M (SD)	n (%)	M (SD)	n (%)	M (SD)
Sick leave attitudes at follow-up		0.64 (0.24)		0.63 (0.23)		0.66 (0.25)
Sick leave at follow-up (self-report)	610 (45.9)		218 (37.2)		392 (52.7)	
Sick leave register (2008–2016)	802 (60.3)		289 (49.3)		513 (69.0)	
Sick leave register prior to baseline (2006)	222 (16.7)		68 (11.1)		154 (20.7)	
Human values at baseline (mean centered)						
Power		−1.11 (0.71)		−0.94 (0.69)		−1.25 (0.69)
Achievement		−0.70 (0.74)		−0.62 (0.67)		−0.76 (0.78)
Hedonism		0.18 (0.71)		0.13 (0.69)		0.22 (0.73)
Stimulation		−0.88 (0.81)		−0.74 (0.80)		−1.00 (0.81)
Self-direction		0.22 (0.66)		0.33 (0.63)		0.14 (0.67)
Universalism		0.47 (0.54)		0.38 (0.52)		0.55 (0.54)
Benevolence		0.83 (0.57)		0.66 (0.57)		0.96 (0.54)
Security		0.67 (0.62)		0.51 (0.58)		0.79 (0.62)
Tradition		−0.03 (0.83)		0.00 (0.75)		−0.06 (0.88)
Conformity		0.12 (0.81)		0.10 (0.78)		0.13 (0.84)
Age at baseline		47.65 (4.42)		47.74 (4.44)		47.58 (4.40)
University or college education at baseline	637 (47.9)		251 (42.8)		386 (51.9)	
Income (10,000s NOK) in 2007		45.59 (25.27)		56.06 (30.40)		37.35 (16.13)
Partner in household at baseline	1,090 (82.0)		490 (83.6)		600 (80.6)	
Young children in household at baseline	307 (23.1)		162 (27.6)		145 (19.5)	
Public sector employed at baseline	677 (50.9)		201 (34.3)		476 (64.0)	
Full-time work at baseline	1,106 (83.2)		574 (98.0)		532 (71.5)	
Managerial job at baseline	720 (54.1)		388 (66.2)		332 (44.6)	
Good health at baseline	1,189 (89.4)		510 (90.4)		659 (88.6)	

Table 2. Correlation matrix for all study variables (independent variables measured at baseline)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1. Sick leave attitudes																								
2. Sick leave self-report	0.14**																							
3. Sick leave 2008–2016 ^a	0.13**	0.19**																						
4. Power	-0.06	-0.06*	-0.08*																					
5. Achievement	-0.01	0.08**	-0.02	0.42**																				
6. Hedonism	0.03	0.01	0.03	-0.08**	-0.08**																			
7. Stimulation	0.04	0.01	-0.04	0.25**	0.28**	0.05																		
8. Self-direction	-0.01	0.04	-0.06*	0.13**	0.13**	-0.08**	0.24**																	
9. Universalism	0.02	0.03	0.02	-0.45**	-0.40**	-0.10**	-0.22**	-0.06*																
10. Benevolence	0.03	0.02	0.09**	-0.37**	-0.31**	-0.02	-0.33**	-0.16**	0.36**															
11. Security	-0.05	-0.01	0.06*	-0.31**	-0.38**	-0.12**	-0.47**	-0.31**	0.03	0.12**														
12. Tradition	0.04	-0.05	-0.00	-0.35**	-0.40**	-0.19**	-0.44**	-0.38**	-0.06*	-0.06*	0.29**													
13. Conformity	-0.05	-0.05	0.03	-0.25**	-0.29**	-0.32**	-0.46**	-0.41**	-0.10**	-0.01	0.27**	0.45**												
14. Gender	0.06*	0.16**	0.20**	-0.21**	-0.09**	0.06*	-0.16**	-0.14**	0.15**	0.27**	0.22**	-0.04	0.02											
15. Age	0.02	-0.06*	0.03	-0.08**	-0.02	-0.05	-0.05	-0.04	0.10**	-0.01	0.06	0.07*	0.01	-0.02										
16. Education	-0.03	0.08**	-0.08**	0.12**	0.23**	-0.09**	0.13**	0.12**	0.10**	-0.01	-0.13**	-0.23**	0.02	-0.02	-0.03									
17. Income	-0.09**	-0.13**	-0.16**	0.32**	0.25**	-0.03	0.21**	0.09**	-0.22**	-0.20**	-0.20**	-0.15**	-0.10*	-0.37**	-0.02	0.21**								
18. Partner	-0.03	-0.06*	-0.04	0.06*	-0.02	-0.04	-0.09**	0.08**	0.00	0.07*	0.03	0.08**	0.08**	-0.04	-0.05	-0.02	0.02							
19. Young children	-0.01	-0.03	0.00	0.10**	0.01	-0.05	-0.01	0.01	-0.07*	-0.02	0.00	-0.02	0.05	-0.10**	-0.43**	0.03	0.07**	0.17**						
20. Work sector	0.05	0.08**	0.07*	-0.03	0.01	-0.00	-0.03	-0.03	0.12**	-0.08**	0.05	-0.04	-0.08**	0.29**	0.09**	0.26**	-0.22**	-0.02	-0.12**					
21. Full-time work	-0.07*	-0.10**	-0.11**	0.18**	0.15**	-0.00	-0.19**	0.14**	-0.07*	-0.15**	-0.23**	-0.11**	-0.14**	-0.35**	0.02	0.10**	0.34**	-0.05	0.00	-0.10**				
22. Managerial job	-0.10**	-0.07*	-0.09**	0.30**	0.16**	-0.01	0.10**	0.09**	-0.11*	-0.06*	-0.15**	-0.19**	-0.11**	-0.22**	-0.02	0.12**	0.31**	0.04	0.01	-0.06*	0.24**			
23. Health	-0.09**	-0.08**	-0.11**	0.01	-0.01	0.01	-0.00	0.01	0.00	0.01	-0.00	-0.02	-0.00	-0.03	-0.06*	0.11**	0.09**	0.03	0.01	-0.00	0.06*	0.08**		
24. Sick leave 2006 ^b	0.08**	0.14**	0.24**	-0.06*	-0.03	0.01	-0.01	0.04	-0.01	0.08**	0.04	0.02	0.03	0.12**	0.06*	-0.06*	-0.11**	-0.04	-0.01	0.06*	0.06*	-0.05	-0.15**	

* $p < 0.05$.** $p < 0.01$.^aRegister-based sick leave in the years between baseline and follow-up.^bRegister-based sick leave in the year prior to baseline.

Table 3. Results of stepwise linear regression analyses with attitudes toward sickness absence at follow-up as dependent variable

Variable at baseline	Step 1		Step 2		Step 3		Step 4	
	Beta	p	Beta	p	Beta	p	Beta	p
Power	-0.056	0.059	-0.041	0.181	-0.013	0.698	-0.010	0.759
Achievement	-0.010	0.735	-0.003	0.918	0.019	0.546	0.020	0.523
Hedonism	0.029	0.326	0.026	0.381	0.028	0.345	0.027	0.372
Stimulation	0.039	0.192	0.053	0.080	0.066	0.033	0.065	0.035
Self-direction	-0.008	0.782	0.005	0.879	0.014	0.646	0.017	0.566
Universalism	0.024	0.421	0.011	0.725	-0.002	0.953	0.001	0.979
Benevolence	0.032	0.276	0.015	0.619	0.007	0.823	0.003	0.935
Security	-0.048	0.109	-0.070	0.022	-0.087	0.006	-0.087	0.005
Tradition	0.043	0.146	0.044	0.142	0.022	0.474	0.021	0.493
Conformity	-0.054	0.070	-0.055	0.063	-0.071	0.021	-0.073	0.017

Note. Each line represents separate regression models for each human value. The steps are adjusted for the following baseline variables: Step 2 – age, gender; Step 3 – additional adjustment for education, income, partner, children, work sector, work time, work position, self-rated health; Step 4 – additional adjustment for register-based sick leave in the year prior to baseline (2006).

significant when controlling for all the other potential confounders, including socioeconomic status, work and family variables, and previous sick leave (Step 4). Moreover, in the final two steps (Steps 3 and 4), conformity was negatively related to sickness absence attitudes, whereas stimulation had a positive association with sickness absence attitudes.

When examining predictors of self-reported sick leave, logistic regression analyses showed significant associations of achievement and power with sick leave at follow-up without control for potential confounders (Step 1, Table 4). Nonetheless, only achievement displayed significant associations when controlling for potential confounders in Steps 2 through 4. Results from the final fourth step showed that a difference of one unit in achievement was associated with 33% higher odds of prospective sick leave compared with no sick leave (p = 0.001). Moreover, even though self-direction did not show a significant bivariate association with sick leave in Step 1 (p = 0.128), significant associations emerged when control variables were included in the model, such that a one-unit difference in self-direction represented a 22% increase in odds of prospective self-reported sick leave in the final model (p = 0.032).

A final set of stepwise binary regression analyses treated register-based sick leave between survey waves as the outcome

(Table 5). In Step 1, power (p = 0.006) and self-direction (p = 0.035) were negatively related to the risk of prospective register-based sick leave, while benevolence (p = 0.001) and security (p = 0.036) were positively associated with such sick leave. However, all associations became insignificant when adjusted for potential confounders (Steps 2–4).

We additionally repeated all regression analyses without adjusting for self-rated health in Steps 3 and 4, which did not change the results substantially.

DISCUSSION

The aim of the present study was to examine whether human values are prospectively associated with attitudes toward sickness absence and to actual, self- and register-reported, sickness absence. Results showed no bivariate associations between human values and sick leave attitudes, but associations between security, conformity, and stimulation values and such attitudes emerged when controlling for other potential confounders. Although power initially was significantly correlated with self-reported sick leave, only achievement and self-direction were significantly related to self-reported sick leave in full models. Power, self-direction, benevolence, and security were merely bivariately related to

Table 4. Results of stepwise binary logistic regression analyses with self-reported sick leave at follow-up as dependent variable

Variable at baseline	Step 1		Step 2		Step 3		Step 4	
	OR [95% CI]	p	OR [95% CI]	p	OR [95% CI]	p	OR [95% CI]	p
Power	0.84 [0.72–0.99]	0.033	0.91 [0.77–1.06]	0.226	0.96 [0.80–1.14]	0.633	0.96 [0.81–1.15]	0.684
Achievement	1.23 [1.06–1.43]	0.007	1.28 [1.10–1.50]	0.002	1.32 [1.12–1.56]	0.001	1.33 [1.12–1.57]	0.001
Hedonism	1.03 [0.88–1.20]	0.710	1.00 [0.85–1.17]	0.967	1.02 [0.87–1.20]	0.798	1.02 [0.87–1.20]	0.832
Stimulation	1.01 [0.88–1.16]	0.871	1.07 [0.93–1.23]	0.367	1.06 [0.91–1.22]	0.456	1.05 [0.90–1.21]	0.551
Self-direction	1.14 [0.96–1.35]	0.128	1.22 [1.02–1.44]	0.026	1.19 [1.00–1.42]	0.052	1.22 [1.02–1.46]	0.032
Universalism	1.10 [0.90–1.35]	0.353	1.04 [0.84–1.28]	0.737	0.94 [0.75–1.17]	0.558	0.96 [0.77–1.19]	0.689
Benevolence	1.06 [0.87–1.28]	0.563	0.92 [0.75–1.12]	0.389	0.88 [0.72–1.09]	0.234	0.86 [0.70–1.06]	0.166
Security	0.97 [0.81–1.16]	0.725	0.87 [0.72–1.05]	0.148	0.87 [0.72–1.06]	0.171	0.87 [0.72–1.06]	0.173
Tradition	0.90 [0.78–1.02]	0.087	0.91 [0.79–1.04]	0.161	0.89 [0.77–1.03]	0.123	0.89 [0.77–1.03]	0.120
Conformity	0.89 [0.78–1.02]	0.103	0.89 [0.77–1.02]	0.082	0.92 [0.80–1.06]	0.253	0.91 [0.79–1.06]	0.224

Note. OR = odds ratio, 95% CI = 95% confidence interval of OR. Each line represents separate regression models for each human value. The steps are adjusted for the following baseline variables: Step 2 – age, gender; Step 3 – additional adjustment for education, income, partner, children, work sector, work time, work position, self-rated health; Step 4 – additional adjustment for register-based sick leave in the year prior to baseline (2006).

Table 5. Results of stepwise binary logistic regression analyses with register-based sick leave between baseline and follow-up (2008–2016) as dependent variable

Variable at baseline	Step 1		Step 2		Step 3		Step 4	
	OR [95% CI]	<i>p</i>	OR [95% CI]	<i>p</i>	OR [95% CI]	<i>p</i>	OR [95% CI]	<i>p</i>
Power	0.80 [0.68–0.94]	0.006	0.91 [0.77–1.07]	0.237	0.98 [0.82–1.18]	0.846	0.98 [0.83–1.20]	0.983
Achievement	0.94 [0.80–1.09]	0.390	0.99 [0.84–1.15]	0.857	1.09 [0.92–1.29]	0.333	1.10 [0.92–1.30]	0.295
Hedonism	1.08 [0.92–1.26]	0.364	1.05 [0.89–1.23]	0.576	1.04 [0.88–1.23]	0.651	1.03 [0.87–1.22]	0.701
Stimulation	0.91 [0.79–1.04]	0.172	0.99 [0.85–1.14]	0.837	1.04 [0.90–1.21]	0.592	1.03 [0.88–1.20]	0.733
Self-direction	0.83 [0.70–0.99]	0.035	0.91 [0.76–1.08]	0.278	0.93 [0.78–1.12]	0.455	0.96 [0.80–1.15]	0.641
Universalism	1.07 [0.87–1.31]	0.544	0.93 [0.75–1.16]	0.529	0.91 [0.72–1.14]	0.395	0.93 [0.73–1.17]	0.511
Benevolence	1.40 [1.15–1.71]	0.001	1.17 [0.95–1.44]	0.133	1.13 [0.91–1.40]	0.258	1.09 [0.88–1.35]	0.435
Security	1.22 [1.01–1.46]	0.036	1.05 [0.87–1.27]	0.626	0.99 [0.81–1.20]	0.880	0.99 [0.81–1.21]	0.899
Tradition	1.00 [0.87–1.14]	0.960	1.01 [0.88–1.16]	0.885	0.93 [0.80–1.08]	0.320	0.92 [0.79–1.07]	0.289
Conformity	1.07 [0.93–1.23]	0.330	1.06 [0.92–1.22]	0.398	1.01 [0.87–1.17]	0.900	1.00 [0.86–1.17]	0.966

Note. OR = odds ratio. 95% CI = 95% confidence interval of OR. Each line represents separate regression models for each human value. The steps are adjusted for the following baseline variables: Step 2 – age, gender; Step 3 – additional adjustment for education, income, partner, children, work sector, work time, work position, self-rated health; Step 4 – additional adjustment for register-based sick leave in the year prior to baseline (2006).

register-based sickness absence. *Self-transcendence* values and *hedonism* were not related to any of the outcome measures in adjusted analyses.

Associations between human values and sick leave attitudes and behavior

Power was associated with less risk of sick leave in bivariate analyses; however, this relationship diminished when controlling for basic sociodemographic factors such as age and gender. In contrast, the other *self-enhancement* value, *achievement*, was positively associated with the risk of self-reported sick leave, even when controlling for a variety of potential confounders. This result was somewhat surprising given previous findings that *achievement* was related to reduced risk of disability pension (Blekesaune, 2015) and the strong link between *achievement* and work commitment (Cohen, 2009). A possible explanation for this association may be that *achievement* has been linked to higher levels of stress and anxiety (Hanel & Wolfradt, 2016) and higher intake of alcohol (Nordfjærn & Brunborg, 2015), which may result in a higher risk of sick leave. The fact that we find no association between *achievement* and register-based sick leave (which only encompasses longer sick leave spells) could indicate that *achievement*-oriented individuals are more prone to take shorter breaks from work, if such a breather is seen as acceptable and functional to achieving their desired goals in the long run, but are hesitant to take longer periods of absence that could harm their careers.

In line with our prediction for *openness to change* values, *stimulation* was associated with more lenient attitudes toward sick leave in adjusted analyses. Individuals who value *self-direction* also had an increased risk of self-reported sick leave when controlling for potential confounders in the analysis. The absence of a significant relationship between *self-direction* and register-based sick leave beyond a bivariate association supports the assumption that individuals who prioritize this value primarily do not have longer absences, which typically are associated with more severe health issues, while their threshold for shorter absences is somewhat lower than that of other people. The results

may be explained by *self-direction* being related to independence of thought and exploration, and that persons high on *self-direction* do not seem to be particularly attached to their workplace (Cohen, 2009).

We predicted that *conservation* values would be related to stricter sick leave attitudes and lower risk of sick leave. Although *security* was correlated with increased risk of prospective register-based sick leave, none of these human values were associated with actual sick leave when controlling for potential confounders. However, in line with our prediction, both *conformity*- and *security*-oriented individuals displayed more restrictive attitudes toward sick leave. This finding is in accordance with the tendency of *conservation*-oriented individuals to be moderate and follow rules. Moreover, this association could be an expression of those high in *security* being particularly concerned about the stability and harmony of the relationship with colleagues and the workplace.

Possible explanations for the modest findings between human values and sick leave

Values are considered to be fundamentally important for how people orient in life, guiding attitudes and behavioral decisions, and are often used to help explain why individuals behave the way they do (Bardi & Schwartz, 2003). However, in the present study we found relatively few associations with sick leave and sick leave attitudes. Effect sizes were also modest. For example, standardized regression coefficients of the association between human values and attitudes toward sickness absence were all below 0.1, thereby indicating small-sized associations. One potential explanation of these findings may concern bandwidth fidelity, which refers to the idea that broad human values may be too broad and distant to accurately predict a rather specific behavior such as sick leave. In that regard, values that are more specifically related to work, health, or illness may have greater explanatory power and should be examined more closely in future research. Even though human values are shown to be relatively stable constructs (Schuster, Pinkowski & Fischer, 2019), the rather large time interval of 10 years between the assessment of

human values and self-reported sickness absence and attitudes toward sickness absence could have contributed to few significant associations. It is also possible that personal values are less important for physician-certified sickness absence spells (which will include all longer sick leaves as assessed by register data), because the physician may to a limited degree be influenced by the patient's human values when deciding to certify sickness absence, whereas such values may be more important for self-certified sickness absence.

Moreover, individuals do not always act in line with their values, partly because social value systems are assumed to interact with personal value systems and influence decisions about what is appropriate (Cieciuch, 2017; Rohan, 2000). Normative pressures may be particularly relevant for sick leave and may partly explain the modest findings, and studies show that social norms and interactions in the workplace are related to sick leave behavior (e.g., Godøy & Dale-Olsen, 2018; ten Brummelhuis, Johns, Lyons & ter Hoeven, 2016). Studies also suggest that some value types generally are more obscured by social norms and more weakly correlated with behavior than others such as *conformity* (Bardi & Schwartz, 2003). This may partly explain the finding that *conformity* predicted attitudes toward sick leave in our study but was not correlated with actual sick leave.

Although we consider our findings regarding the relationship between human values and sick leave to be relatively modest, they still provide indications that broad human values are predictive of sick leave to some extent. Most notably, human values were related to both attitudes toward sick leave and self-reported sickness absence, which mainly included shorter self-certified absence; however, human values did not predict purely physician-certified longer sick leave that is more closely associated with chronic and serious health problems. Our conclusion is therefore that human values are associated with sick leave in situations that are likely to involve greater room for individual assessments of whether sick leave is necessary (i.e., sick leave attitudes and self-certified absence), but other factors may be of greater importance when predicting long-term sickness absence.

Strengths and limitations

The present study is one of the first to examine whether human values are associated with sick leave and sick leave attitudes. Major strengths are the use of a large sample size and longitudinal survey and register data. However, several limitations have to be noted. Even though objective register measures of sick leave were available, the measures do not distinguish between the length of the sick leave spells or the number of spells in our data. Moreover, the register records on sick leave do not provide any information on self- or physician-certified sick leave below 17 days, and we therefore included self-reports of sick leave episodes in additional analyses.

Our eight-item index of sick leave attitudes provides a detailed measure of this construct, and the use of hypothetical situations leaves more scope for value priorities to come into play than questions on strictly health-related issues, which strengthens our confidence in our results. However, the measure also has limitations since it has not been carefully tested and used in many other surveys.

The application of a widely used scale for measuring values is also a study strength and may facilitate the comparison of study results with other studies. Still, values are latent, abstract constructs that can be particularly challenging to capture with brief survey instruments, and the validity of the HVS has been questioned in recent years. For example, some studies have pointed to low reliability and lack of discriminant validity between some of the values, and revised short forms of the HVS and PVQ, and alternative groupings of the human values, have therefore been proposed (e.g., Knoppen & Saris, 2009; Sandy, Gosling, Schwartz & Koelkebeck, 2016). Future studies may gain more insight into the relationship between human values and sick leave with improved versions of the values scale.

The study was based on a survey sample that was stratified to be representative of the adult Norwegian population 40 years and older. However, due to non-response and selective attrition between study waves, respondents with higher education and good health were overrepresented in our sample. Ideally, our sample should have also included younger adults, but data from younger adults were not available. Finally, the findings from our study may have limited external validity to countries that have less generous welfare systems than Norway's and substantially different labor market conditions. Whether human values are associated with sick leave in other countries is yet to be examined.

CONCLUSION

The social patterns in sick leave cause concern for increasing social differences in society (Mykletun *et al.*, 2010). Values and attitudes have been proposed as part of the explanation for differences in levels of sickness absence. *Achievement* and *self-direction* were associated with a greater risk of self-reported sick leave in our study. *Stimulation*, a value that is conceptually linked to *self-direction*, was also related to more lenient attitudes toward sick leave, whereas *conservation* values were associated with having stricter attitudes. Still, none of the 10 human values were related to the risk of receiving sickness benefits due to long-term physician-certified sick leave. We thus conclude that broad human values can predict shorter sick leave spells and attitudes toward sick leave to some extent, but that these values generally do not appear to predict longer-term sick leave that is likely to be more closely linked to mental and somatic health. Being aware of value priorities that can contribute to lenient or strict thresholds for shorter-term sick leave may be useful for managers who are responsible for following sick leave in the workplace. Recommendations for future research are to assess whether health- or work-focused values can provide greater explanatory power for sickness absence.

FUNDING INFORMATION

This research is supported by a grant from the Research Program on Sickness Absence, Work, and Health by the Research Council of Norway (#237993). von Soest's work was additionally supported by grant #288083 from the Research Council of Norway. The funding sources were not involved in the study design, data collection, analysis, and interpretation of the data, nor in the writing and submission of the present article.

ACKNOWLEDGMENTS

The Norwegian Life-Course, Ageing and Generation (NorLAG) data collections have been financed by the Research Council of Norway; the Ministry of Health and Care Services; the Ministry of Labour; the Ministry of Children, Equality and Social Inclusion; the Ministry of Local Government and Regional Development; the Norwegian Directorate of Health; the Norwegian State Housing Bank; Statistics Norway and Norwegian Social Research, Oslo Metropolitan University. NorLAG data are part of the ACCESS Life Course infrastructure funded by grants from the National Financing Initiative for Research Infrastructure at the Research Council of Norway (#195403 and #269920). The data that support the findings of this study are distributed by the Norwegian Centre for Research Data for research purposes at https://doi.org/10.18712/norlag3_1.

ETHICS STATEMENT

The NorLAG study and data collections were reviewed and approved by the Norwegian Centre for Research Data and the Data Protection Officer for Research at Statistics Norway. The data are fully anonymous.

CONFLICT OF INTERESTS

All authors declare that they have no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available for research purposes. The data are distributed by the Norwegian Centre for Research Data at https://doi.org/10.18712/norlag3_1.

REFERENCES

- Allebeck, P. & Mastekaasa, A. (2004). Chapter 5. Risk factors for sick leave – General studies. *Scandinavian Journal of Public Health*, 32 (Suppl. 63), 49–108. <https://doi.org/10.1080/14034950410021853>.
- Bakker, A.B. & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, 22(3), 309–328. <https://doi.org/10.1108/02683940710733115>.
- Bardi, A. & Schwartz, S.H. (2003). Values and behaviour: Strength and structure of relations. *Personality and Social Psychology Bulletin*, 29 (10), 1207–1220. <https://doi.org/10.1177/0146167203254602>.
- Barmby, T.A., Ercolani, M.G. & Treble, J.G. (2002). Sick leave absence: An international comparison. *The Economic Journal*, 112(489), F315–F331. <https://doi.org/10.1111/1468-0297.00046>.
- Beller, J. (2021). Personal values and mortality: Power, benevolence and self-direction predict mortality risk. *Psychology and Health*, 36(1), 115–127. <https://doi.org/10.1080/08870446.2020.1761976>.
- Bilsky, W., Janik, M. & Schwartz, S.H. (2011). The structural organization of human values – Evidence from three rounds of the European social survey (ESS). *Journal of Cross-Cultural Psychology*, 42(5), 759–776. <https://doi.org/10.1177/0022022110362757>.
- Blekesaune, M. (2015). Can self-enhancement values predict retirement behavior? An analysis combining survey and register data from Norway. *The International Journal of Aging and Human Development*, 80(2), 101–114. <https://doi.org/10.1177/0091415015587161>.
- Cieciuch, J. (2017). Ch. 11. Exploring the complicated relationship between values and behaviour (pp. 237–247). In S. Roccas & L. Sagiv (Eds.), *Values and behavior: Taking a cross cultural perspective*. Cham: Springer. <https://doi.org/10.1007/978-3-319-56352-7>.
- Cohen, A. (2009). A value based perspective on commitment in the workplace: An examination of Schwartz's basic human values theory among bank employees in Israel. *International Journal of Intercultural Relations*, 33, 332–345. <https://doi.org/10.1016/j.ijintrel.2009.04.001>.
- Davidov, E., Meulemann, B., Schwartz, S.H. & Schmidt, P. (2014). Individual values, cultural embeddedness, and anti-immigration sentiments: Explaining differences in the effect of values on attitudes toward immigration across Europe. *Köln Z Soziol*, 66, 263–285. <https://doi.org/10.1007/s11577-014-0274-5>.
- Godøy, A. & Dale-Olsen, H. (2018). Spillovers from gatekeeping – Peer effects in absenteeism. *Journal of Public Economics*, 167, 190–204. <https://doi.org/10.1016/j.jpubeco.2018.08.015>.
- Hagelund, A. (2014). From economic incentives to dialogic nudging – The politics of change and inertia in Norwegian sickness insurance. *Journal of Social Policy*, 43(1), 69–85. <https://doi.org/10.1017/S0047279413000615>.
- Hanel, P.H.P. & Wolfardt, U. (2016). The 'dark side' of personal values: Relations to clinical constructs and their implications. *Personality and Individual Differences*, 97, 140–145. <https://doi.org/10.1016/j.paid.2016.03.045>.
- Harrison, D.A. & Martocchio, J.J. (1998). Time for absenteeism: A 20-year review of origins, offshoots, and outcomes. *Journal of Management*, 24(3), 305–350. <https://doi.org/10.1177/014920639802400303>.
- Hauge, K.E. & Ulvestad, M.E. (2017). Having a bad attitude? The relationship between attitudes and sickness absence. *IZA Journal of Labor Policy*, 6(11), 1–27. <https://doi.org/10.1186/s40173-017-0088-y>.
- Haugen, K., Holm, E., Lundevaller, E. & Westin, K. (2008). Localised attitudes matter: A study of sickness absence in Sweden. *Population, Space and Place*, 14, 189–207. <https://doi.org/10.1002/psp.483>.
- Henderson, M., Harvey, S.B., Øverland, S., Mykletun, A. & Hotopf, M. (2011). Work and common psychiatric disorders. *Journal of the Royal Society of Medicine*, 104(5), 198–207. <https://doi.org/10.1258/jrsm.2011.100231>.
- Henderson, M., Hotopf, M. & Leon, D.A. (2009). Childhood temperament and long-term sickness absence in adult life. *The British Journal of Psychiatry*, 194(3), 220–223. <https://doi.org/10.1192/bjp.bp.107.044271>.
- Hultin, H., Lindholm, C. & Möller, J. (2012). Is there an association between long-term sick leave and disability pension and unemployment beyond the effect of health status? – A cohort study. *PLoS One*, 7(4), e35614. <https://doi.org/10.1371/journal.pone.0035614>.
- Ipsos MMI (2015). Norsk Monitor spørreskjema 2015 [The Norwegian Monitor questionnaire 2015]
- Kivimäki, M., Head, J., Ferrie, J.E., Shipley, M.J., Vahtera, J. & Marmot, M.G. (2003). Sickness absence as a global measure of health: Evidence from mortality in the Whitehall II prospective cohort study. *BMJ*, 327(7411), 364. <https://doi.org/10.1136/bmj.327.7411.364>.
- Knoppen, D. & Saris, W. (2009). Do we have to combine values in the Schwartz' human values scale? A comment on the Davidov studies. *Survey Research Methods*, 3(2), 91–103. <https://doi.org/10.18148/srm/2009.v3i2.2601>.
- Laaksonen, M., Pitkäniemi, J., Rahkonen, O. & Lahelma, E. (2010). Work arrangements, physical working conditions, and psychosocial working conditions as risk factors for sickness absence: Bayesian analysis of prospective data. *Annals of Epidemiology*, 20(5), 332–338. <https://doi.org/10.1016/j.annepidem.2010.02.004>.
- Løset, G.K. & von Soest, T. (2022). Big five personality traits and physician-certified sickness absence. *European Journal of Personality*, 1–15. <https://doi.org/10.1177/08902070211065236>.
- Markussen, S. (2012). The individual cost of sick leave. *Journal of Population Economics*, 25(4), 1287–1306. <https://doi.org/10.1007/s00148-011-0390-8>.
- Markussen, S., Røed, K., Røgeberg, O.J. & Gaure, S. (2011). The anatomy of absenteeism. *Journal of Economics*, 30(2), 277–292. <https://doi.org/10.1016/j.jhealeco.2010.12.003>.
- Marmot, M., Feeney, A., Shipley, M., North, F. & Syme, S.L. (1995). Sickness absence as a measure of health status and functioning: From the UK Whitehall II study. *Journal of Epidemiology and Community Health*, 49(2), 124–130. <https://doi.org/10.1136/jech.49.2.124>.
- Mastekaasa, A. (2013). Dependent children and women's sickness absence in the EU countries and Norway. *European Societies*, 15(5), 686–706. <https://doi.org/10.1080/14616696.2012.721892>.

- Mastekaasa, A., Dale-Olsen, H., Hellevik, T., Løset, G.K. & Østbakken, K.M. (2021). Gender differences in sickness absence: Do managers evaluate men and women differently with regard to the appropriateness of sickness absence? *Scandinavian Journal of Public Health*, 49(2), 125–131. <https://doi.org/10.1177/1403494819890783>.
- Mastekaasa, A. & Melsom, A.M. (2014). Occupational segregation and gender differences in sickness absence: Evidence from 17 European countries. *European Sociological Review*, 30(5), 582–594. <https://doi.org/10.1093/esr/jcu059>.
- McClelland, D.C. (1985). How motives, skills, and values determine what people do. *American Psychologist*, 40(7), 812–825. <https://doi.org/10.1037/0003-066X.40.7.812>.
- Merz, E.-A. & Liefbroer, A.C. (2012). The attitude toward voluntary childlessness in Europe: Cultural and institutional explanations. *Journal of Marriage and Family*, 74(3), 587–600. <https://doi.org/10.1111/j.1741-3737.2012.00972.x>.
- Miraglia, M. & Johns, G. (2021). The social and relational dynamics of absenteeism from work: A multilevel review and integration. *Academy of Management, Annals*, 15(1), 37–67. <https://doi.org/10.5465/annals.2019.0036>.
- Morales, C., Holtschlag, C., Masuda, A.D. & Marquina, P. (2019). In which cultural contexts do individual values explain entrepreneurship? An integrative values framework using Schwartz's theories. *International Small Business Journal: Researching Entrepreneurship*, 37(3), 241–267. <https://doi.org/10.1177/0266242618811890>.
- Mykletun, A., Eriksen, H. R., Røed, K., Schmidt, G., Fosse, A., Damberg, G., Christiansen, E. C., & Guldvog, B. (2010). *Tiltak for reduksjon i sykefravær: Aktiviserings- og nærversreform*. Oslo: Ekspertgrupperapport til Arbeidsdepartementet. Accessed from https://www.regjeringen.no/contentassets/2e391e09f9d1452987c37df028d78d61/r_2010_tiltak_sykefravaer.pdf?id=2105343, 21.06.2021.
- Nordfjærn, T. & Brunborg, G.S. (2015). Associations between human values and alcohol consumption among Norwegians in the second half of life. *Substance Use and Misuse*, 50(10), 1284–1293. <https://doi.org/10.3109/10826084.2014.998237>.
- NorLAG (2021). The Norwegian Life-Course, Ageing and Generation Study, Wave 2 and Wave 3, file version 1. The Norwegian Centre for Research Data. https://doi.org/10.18712/norlag3_1
- OECD (2010). Sickness, disability and work: Breaking the barriers: A synthesis of findings across OECD countries. OECD Publishing. <https://doi.org/10.1787/9789264088856-en>
- OECD (2019). OECD Economic Surveys: Norway 2019. OECD Publishing. <https://doi.org/10.1787/c217a266-en>
- Rohan, M.J. (2000). A rose by any name? The values construct. *Personality and Social Psychology Review*, 4(3), 255–277. https://doi.org/10.1207/S15327957PSPR0403_4.
- Sandy, C.J., Gosling, S.D., Schwartz, S.H. & Koelkebeck, T. (2016). The development and validation of brief and ultrabrief measures of values. *Journal of Personality Assessment*, 99(5), 545–555. <https://doi.org/10.1080/00223891.2016.1231115>.
- Schuster, C., Pinkowski, L. & Fischer, D. (2019). Intra-individual change in adulthood. A systematic literature review of longitudinal studies assessing Schwartz's value orientations. *Zeitschrift für Psychologie*, 227(1), 42–52. <https://doi.org/10.1027/2151-2604/a000355>.
- Schwartz, S.H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Psychology*, 25, 1–65. [https://doi.org/10.1016/S0065-2601\(08\)60281-6](https://doi.org/10.1016/S0065-2601(08)60281-6).
- Schwartz, S. H. (2003). *Chapter 7. A proposal for measuring value orientations across nations*. ESS Core Questionnaire Development – Human Values Proposal. European Social Survey. Accessed from https://www.europeansocialsurvey.org/docs/methodology/core_ess_questionnaire/ESS_core_questionnaire_human_values.pdf, 03.03.2022
- Schwartz, S.H. (2007). Value orientations: Measurement, antecedents and consequences across nations. In R. Jowell, C. Roberts, R. Fitzgerald & G. Eva (Eds.), *Measuring attitudes cross-nationally: Lessons from the European social survey* (pp. 169–203). London: Sage. <https://doi.org/10.4135/9781849209458.n9>.
- Schwartz, S. H. (2010). *Computing scores for the 10 human values*. European Social Survey. Accessed from https://www.europeansocialsurvey.org/docs/methodology/ESS_computing_human_values_scale.pdf, 16.04.2021
- Schwartz, S.H. (2012). An overview of the Schwartz theory of basic values. *Online Readings in Psychology and Culture*, 2(1), 1–20. <https://doi.org/10.9707/2307-0919.1116>.
- Schwartz, S.H. & Bilsky, W. (1987). Toward a universal psychological structure of human values. *Journal of Personality and Social Psychology*, 53(3), 550–562. <https://doi.org/10.1037/0022-3514.53.3.550>.
- Schwartz, S.H., Melech, G., Lehmann, A., Burgess, A., Harris, M. & Owens, V. (2001). Extending the cross-cultural validity of the theory of basic human values with a different method of measurement. *Journal of Cross-Cultural Psychology*, 32(5), 519–542. <https://doi.org/10.1177/0022022101032005001>.
- Sortheix, F.M. & Schwartz, S.H. (2017). Values that underlie and undermine well-being: Variability across countries. *European Journal of Personality*, 31(2), 187–201. <https://doi.org/10.1002/per.2096>.
- ten Brummelhuis, L.L., Johns, G., Lyons, B.J. & ter Hoeven, C.L. (2016). Why and when do employees imitate the absenteeism of co-workers? *Organizational Behavior and Human Decision Processes*, 134, 16–30. <https://doi.org/10.1016/j.obhdp.2016.04.001>.
- Vecchione, M., Schwartz, S.H., Caprara, G.V., Schoen, H., Cieciuch, J., Silvester, J. et al. (2014). Personal values and political activism: A cross-national study. *British Journal of Psychology*, 106(1), 84–106. <https://doi.org/10.1111/bjop.12067>.
- Veenstra, M., Herlofson, K., Aartsen, M., Hansen, T., Hellevik, T., Henriksen, G. et al. (2021). Cohort profile: The Norwegian life course, ageing and generation study (NorLAG). *International Journal of Epidemiology*, 50(3), 728–729i. <https://doi.org/10.1093/ije/dyaa280>.
- Vlasveld, M.C., van der Feltz-Cornelis, C.M., Anema, J.R., van Mechelen, W., Beekman, A.T., van Marwijk, H.W.J. et al. (2013). The associations between personality characteristics and absenteeism: A cross-sectional study in workers with and without depressive and anxiety disorders. *Journal of Occupational Rehabilitation*, 23(3), 309–317. <https://doi.org/10.1007/s10926-012-9406-9>.
- Zimmerman, R.D., Swider, B.W., Woo, S.E. & Allen, D.G. (2016). Who withdraws? Psychological individual differences in employee withdrawal behaviors. *Journal of Applied Psychology*, 101(4), 498–519. <https://doi.org/10.1037/apl0000068>.

Received 22 August 2021, accepted 12 June 2022

APPENDIX A

Table A1. An overview of the eight items measuring attitudes towards sick leave in NorLAG

“For how long do you think it is acceptable to be on sick leave for the following reasons . . .”

Family-related reasons

“ . . . caring for or nursing close family members”

“ . . . difficulties related to marital breakdown”

“ . . . grief related to death in the immediate family”

“ . . . attending a sick child when ‘sick child days’ are used up”

Work-related reasons

“ . . . great pressure or stress at work”

“ . . . feeling tired or exhausted”^a

Illness-related reasons

“ . . . a common cold with mild fever”

“ . . . having the flu or the like”

^aThe item might give associations to a strenuous work situation, but may equally be seen in connection with a demanding family situation and/or to incipient illness or to other reasons.

Table A2. An overview of the 21-item Human Values Scale in NorLAG

Self-transcendence core values

UNIVERSALISM ($\alpha = 0.62$): that people are treated equally and to protect the weak in society; to listen to and understand people different from oneself; to care for nature and looking after the environment

BENEVOLENCE ($\alpha = 0.68$): to help people and care for others' well-being; to be loyal and devoted to friends

Self-enhancement core values

POWER ($\alpha = 0.39$): to have a lot of money and expensive things; to be in charge and tell others what to do

ACHIEVEMENT ($\alpha = 0.55$): to show own abilities and be admired; to be successful

Openness to change core values/Self-enhancement core values

HEDONISM ($\alpha = 0.67$): to have a good time and fun; to enjoy life's pleasures and to "spoil" oneself

Conservation core values

SECURITY ($\alpha = 0.46$): to live in secure and safe surroundings; that things be organized and clean^a

TRADITION ($\alpha = 0.37$): to be humble and modest, and not draw attention to oneself; to follow handed down traditions and customs

CONFORMITY ($\alpha = 0.64$): that people do what they are told and follow rules; to behave properly and reasonably

Openness to change core values

SELF-DIRECTION ($\alpha = 0.36$): to think up new ideas and being creative in one's own original way; to make one's own decisions and be free to plan and choose activities in life

STIMULATION ($\alpha = 0.70$): to try lots of new and different things in life; to have an adventurous life and take risks

^aThis item was taken from the PVQ scale (Schwartz *et al.*, 2001) and replaced the item "It is important to him/her that the government ensures his/her safety against all threats. He/she wants the state to be strong so it can defend its citizens" that was used in the ESS version of the scale.