On the Relationship between Swedish Special Educators' Work Absenteeism, Job Satisfaction, and Self-Efficacy for Inclusive Education

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Article Info	Abstract
	Little is known about the working conditions for Swedish special educators who teach students with an intellectual disability. Consequently, the overall aim of this research is to describe special educators' job satisfaction, self-efficacy, and work absenteeism in Swedish special needs comprehensive schools (Grundsärskolan). We surveyed 148 special educators from Sweden (111 were eligible for the analysis). For measurement validation, we used principal axis factoring. For analysis, we estimated a linear regression (job satisfaction as the outcome) and negative binomial regression (work absenteeism as the outcome). The special educators in the study like their jobs, but some desire more resources. Our analysis suggests that higher levels of self-efficacy for inclusive education are associated with higher levels of expected job satisfaction, whereas a higher level of job satisfaction is associated with lower expected work absenteeism.

Introduction

Teaching is considered a high-stress profession (Kyriacou, 2001). Extensive research has shown that teachers endure demanding working conditions, thus predicting low feelings of job satisfaction, high work absenteeism, and a substantial rate of dropout from the occupation (Skaalvik & Skaalvik, 2011, 2015; Liu & Ramsey, 2008). Specifically, teachers have a higher rate of work absenteeism in comparison to other occupational groups (Williams & Gersch, 2004). However, previous research is unsatisfactory because it tends to neglect variation within the teaching profession.

As we will discuss in detail below, Sweden provides a critical case of teachers with low job satisfaction and high absenteeism. Although job satisfaction and absenteeism have been investigated among teachers, less is known about special educators, and even less is known about special educators teaching students with an intellectual disability (ID) (Viel-Ruma, Houchins, Jolivette, & Benson, 2010). Thus, our study will contribute by emphasizing special educators teaching students with an ID and the importance of psychological predictors. Swedish special educators teaching students with ID tend to work with small groups at a special needs comprehensive school; in other words, working conditions that vary drastically from teachers in regular schools. To our knowledge, no previous study has investigated the job satisfaction of special educators who teach students with an ID in special needs comprehensive schools and the relationship of such satisfaction to self-efficacy and work absenteeism. Consequently, this paper makes an empirical contribution. Specifically, we care about predictors that promote job satisfaction and the predictive importance of job satisfaction for work absenteeism.

Aim

The overall aim is to describe special educators' job satisfaction, self-efficacy, and work absenteeism in Swedish special needs comprehensive schools (Grundsärskolan).

(a) What is the relationship between reported levels of special educators' self-efficacy and job satisfaction in Swedish special needs comprehensive schools?

(b) What is the relationship between reported levels of special educators' self-efficacy, job satisfaction, and absenteeism from work in Swedish special needs comprehensive schools?

The Swedish Context: Teachers and Special Educators

The working conditions for Swedish teachers, including special educators, have changed substantively since the 1990s. Teaching was previously regarded as a profession with a good working environment, such as control over working conditions, regulated hours to teach, and resources for buying textbooks and other teaching materials. However, during the last 30 years, the Swedish school system has undergone great changes. One of these changes was that the school system was deregulated and decentralised (Alexiadou & Lundahl, 2016). As a consequence responsibilities for school personnel were transferred to the municipalities and local actors were given considerable freedom to allocate resources.

The deregulation and decentralization included: a local syllabus, municipal school governance, school choice, school vouchers, and the introduction of private (non-fee-paying, tax-funded) 'free schools'. (Alexiadou & Lundahl, 2016) These policies implied that schools competed for students in order to get funding (e.g. schools could shut down due to a loss of students). Thus, students´ achievement scores became used to compare and rank schools. Moreover, the deregulation of instructional content increased teachers' work load (e.g. lesson plans, textbook choice, syllabus development).

The working conditions changed further with the introduction of New Public Management (NPM). According to the tenets of NPM, everything had to be measured and education was scrutinised and evaluated to ensure that schools 'performed', 'produced', or 'delivered' adequately well (Alexiadou & Lundahl, 2016). Municipalities and schools were to deliver quality reports to the National Agency for Education each year. At the millennium turn, Swedish schools had more autonomy than other countries in allocating teaching hours, choosing instructional contents and methods, and deciding on class sizes (OECD, 2002).

NPM can be summarized as running schools as a business. As a consequence, teachers and special educators had to do a lot of paperwork that was not actually teaching There are reports that teachers experience stress, a heavy workload, low autonomy, experience high work absenteeism in comparison to other occupations, and receive little job satisfaction (Kjellström, Almqvist & Modin, 2016). Special educators must produce a substantial amount of paperwork, including documentation of each student's progress and work, dialogues with students and meetings with parents, and recurrent communication and meetings with members of the pupils' health team and therapists. Although their profession is respected and they have a slightly higher salary than general teachers, special educators often find their work exhausting (see also Stempien & Loeb, 2002; Plash & Piotrowski, 2006; Ervasti et al., 2011; Ketheeswarani, 2015). Swedish special educators teaching students with an ID are well prepared to meet the daily challenges as they receive more education than their counterparts in other countries. Besides having teaching degrees for mainstream schools, they also have degrees as special education teachers (advanced level, 90 credits) (Göransson, Lindqvist & Nilholm, 2015).

Predictors of Educators' Job Satisfaction in Previous Research

In the current study we were interested in two predictors: job satisfaction and work absenteeism. We start with the predictors of job satisfaction. Job satisfaction emphasises an individual's attitudes/feelings towards work. Several studies also reveal that teacher self-efficacy is associated with higher levels of job satisfaction (Klassen & Chiu, 2010). We will come to that later. The concept of job satisfaction is multidimensional, which means that an individual can—on one hand—be satisfied with colleagues, but—on the other hand—be dissatisfied with the principal. In spite of this multidimensionality, researchers often measure job satisfaction with a single dimension/scale (Skaalvik & Skaalvik, 2015). However, there are exceptions. One of them is *the Teaching and Learning International Survey (*TALIS*) (OECD, 2014),* which uses a job satisfaction scale with three dimensions. However, later in this paper we will show that more dimensions on a nuanced scale may not always be better with the data.

The majority of previous research has focused on environmental work factors that may predict teachers' feelings of dissatisfaction with the tasks they do: responsibilities; security; demands from administrators, colleagues, students, and parents; work overload; time pressure, student misbehaviour; communication with the special education services about students with problems; a lack of recognition for accomplishments and insufficient resources (Skaalvik & Skaalvik, 2015); inconsistent workloads over the academic year (Kinnunen & Leskinen, 1989); the need to adapt teaching to students' needs; and evaluation apprehension, which can cause stress (Alexiadou & Lundahl, 2016). Male and May (1997) found evidence of a high level of emotional exhaustion among the special educational needs (SEN) teachers in their study. In addition, workload was high in comparison to non-SEN teachers (Male & May, 1997). Williams and Gersch (2004) collected data from 41

teachers in three mainstream schools and two special schools. The results show no significant difference in the overall level of stress between mainstream and special school teachers. However, significant differences were found between special and mainstream teachers in relation to five stress factors: Mainstream teachers were more stressed by noisy students, students´ poor attitudes, lack of time to spend with individual students and inspections by the Office for Standards in Education, Children's Services and Skills (OFSTED). Teachers in special schools were stressed by a lack of resources. Stress from poor working conditions has a strong influence on teachers' job satisfaction (Liu & Ramsey, 2008; Stempien & Loeb, 2002). Stempien and Loeb (2002) compared the satisfaction and dissatisfaction of teachers of emotionally/behaviourally impaired students in special education, teachers of students in general education and teachers responsible for both groups of students. Stempien and Loeb found that teachers of students in special education programs were found to be the most dissatisfied. The difficulties were particularly common amongst younger, less experienced special educators. Teachers and special educators who are dissatisfied with their work display a lower commitment and are at a greater risk for leaving the profession (Alexiadou & Lundahl, 2016, Plash &Piotrowski, 2006).

Predictors of Educators' Absenteeism in Previous Research

As mentioned above, whereas job satisfaction emphasises teachers' attitudes/feelings towards work, work absenteeism emphasises their behaviour. Work environmental factors also predict teacher absenteeism. Research has noted that teachers' illness-related absenteeism seems to increase with a higher percentage of SEN students, especially when the student–teacher ratio is high (Ervasti et al. 2012). Ervasti and colleagues (2011) found that special educators had more absences due to illness than teachers in general education. Compared to male teachers in general education, male teachers in special education appeared to have an excess risk of absence from work due to illness (Ervasti, 2011).

Turning to individual teacher characteristics, researchers have emphasised how age and experience predict differences in absenteeism. For instance, Skaalvik and Skaalvik (2015) noted that while the youngest group of teachers in their study avoided sick leave, 6 of the 10 teachers in the middle-aged group used sick leave as a self-protective strategy. These teachers had reached a point where weekends and vacations were not a sufficient amount of time to recover. When they felt that they were on edge, they actively sought out or asked their doctors for sick leave for a short period of time, normally one to three weeks. Other studies report that novice teachers use less days of sick leave compared to teachers with 5 to 10 years of experience (Clotfelter et al., 2007). However, teachers may respond differently to their working conditions. In the next section we will elaborate the concept of self-efficacy.

Self-efficacy, Job Satisfaction and Work Absenteeism

Self-efficacy is grounded in the theoretical framework of social cognitive theory. Social cognitive theory emphasises the evolution and exercising of human agency: For example, the idea that people can wield some influence over what they do. Self-efficacy stresses people's beliefs about their own capabilities (Bandura, 1986). Bandura defines self-efficacy as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performance" (Bandura, 1986: 391).The theory states that people monitor their own behaviours and reflect on their capabilities to carry out those behaviours. In other words, according to the theory, people learn from their prior experiences. Self-efficacy also predicts people's attitudes and behaviours. Moreover, self-efficacy stresses what individuals believe they can do with whatever skills and abilities they may possess and a person's expectations of and convictions about what they can accomplish in given situations. A person's self-efficacy belief comes from multiple sources. An individual's prior experiences with a task provide the most reliable source of information for efficacy beliefs. Successes strengthen self-efficacy and repeated failures undermine it (Bandura, 1986). People also establish their self-efficacy beliefs according to others' performance of tasks. Self-efficacy indicates a teacher's conviction that he/she can help all students to succeed. Currently, the research on teachers' efficacy in special education prosper. Self-efficacy has been cited as constituting several dimensions of teaching, such as instruction, classroom management, and teacher collaboration (Malinen et al., 2013). However, studies of self-efficacy tend to examine the predictors of teachers' self-efficacy rather than its consequences. For instance, more experienced teachers tend to report greater levels of efficacy (Tschannen-Moran & Woolfolk Hoy, 2007). They also perceived the objective demands of daily teaching as being less threatening than those teachers who had self-doubts about their professional performance (Stempien & Loeb, 2002; McCarthy et al., 2014; Kjellström, Almqvist & Modin, 2016). An optimistic belief in one's competence to deal with daily challenges enhances the motivation to engage in constructive ways of coping (Caprara et al., 2003). Teacher self-efficacy may also moderate the

effects of workload and bullying by colleagues/principals on teachers' physical symptoms and self-reported absenteeism (Van Dick & Wagner, 2001, Betoret, 2006).

Self-efficacy has been cited as one of the most important variables in special education research. It has predicted a number of teacher work outcomes (e.g. job satisfaction and burnout) (Viel-Ruma, Houchins, Jolivette, & Benson, 2010). Skaalvik and Skaalvik (2010) developed the Norwegian Teacher Self-Efficacy Scale (NTSES),which measures six dimensions by four items each. The dimensions are self-efficacy for instruction, adapting education to individual students' needs, motivating students, keeping discipline, cooperating with colleagues and parents, and coping with changes and challenges (Skaalvik & Skaalvik, 2010).

As previous research (Viel-Ruma, Houchins, Jolivette, & Benson, 2010) suggests that self-efficacy matters for job satisfaction, we believe that it is important to investigate this relationship. However, we extend previous work by arguing that the efficacy to teach students with an ID should be associated with their job satisfaction. As our participants are special educators, it is reasonable to assume that their ability to teach students with an ID is more important than their ability to teach a special subject or teachers' general sense of efficacy. Following previous research, we refer to the efficacy to teach students with an ID as efficacy for inclusive education (Sharma, Loreman & Forlin, 2012).

However, we argue that it is important to measure the specific efficacy because this will help us to approach the special challenges met by special educators in Grundsärskolan. In other words, we use a modified and abbreviated version of NTSES and set the scale to be more sensitive for the special educators. As an implication of previous research and our argument, we hypothesise that (H1) self-efficacy for inclusive education is associated with job satisfaction. We also hypothesise that job satisfaction is associated with work absenteeism (H2).

Methods

Participants

In this study, 148 special educators from Northern and Western Sweden participated in a nonrandom sample collected from October 2016 to March 2017. The response rate was 74% (=[148/200]*100). Out of the 148 participants, 111 were eligible for the analysis in the current study after list wise deletion due to missing values. The missing data may reflect the possibility that the educators did not recall how many days they were absent from work. From the purpose of our study, we assume that the missing value is unsystematic. These special educators all taught students whose ages ranged from 12 to 19 years old, has been diagnosed with an ID and had additional needs. As special educators are a hard-to-reach group, we had to contact the principals of schools in Northern Sweden via mail and ask for permission to distribute a Web-based questionnaire to special educators who taught students with an ID. We contacted the special educators in Western Sweden via special-education programmes.

The advantage of using a north and west 'quota' for sampling is that we ensured greater demographic coverage. The disadvantage is that we cannot make inferences about the population of Swedish special educators. Nevertheless, we can still make inferences about the process that generated the sample. In other words, we can still say something about what matters for special educators' job satisfaction in relation to self-efficacy and work absenteeism in the sample.

Variables

The main outcome variables of the study were job satisfaction and work absenteeism. Job satisfaction was measured with 14 questions (See Appendix). The question ranged from agree (=4), somewhat agree (=3), somewhat disagree (=2), and disagree (=1). These questions are found in Table 1.The job satisfaction scale was inspired by the *TALIS 2013 (OECD, 2014),* although we made some slight modifications. The original scale proposes three dimensions (i.e. multidimensional). However, we found that a single dimension could capture the scale (see below) when estimated along with self-efficacy. The special educators' chronological age and their total years of teaching experience were control variables. As the majority of the participants were women, we did not had sex as a control variable.

Table 1. Descriptive statistics (means, sd, min, and max)

Variable	Question	Mean	S.D.	Min	Max
efficacy1	I think I am good at teaching in general	3.45	0.55	1	4
efficacy2	I think I am good at teaching students with disabilities	3.43	0.55	2	4
efficacy3	I think I am good at teaching students with intellectual disabilities	3.36	0.61	2	4
efficacy4	I think I am good at teaching students with language impairment	2.88	0.67	1	4
efficacy5	I think I am good at teaching students with autism	3.13	0.68	1	4
satisfaction1	I have enough time or resources	2.7	0.84	1	4
satisfaction2	I have clear, reasonable, and meaningful goals	3.09	0.68	1	4
satisfaction3	I have the materials and equipment I need to do a good job	2.84	0.79	1	4
satisfaction4	I know what is expected of me at work	3.35	0.67	2	4
satisfaction5	I am allowed to participate in decision-making	3.32	0.62	2	4
satisfaction6	I have a good relationship with the chief of staff	3.41	0.65	2	4
satisfaction7	I have a good relationship with my coworkers	3.56	0.6	2	4
satisfaction8	I have a good relationship with parents	3.65	0.53	2	4
satisfaction9	I have had a chance to participate in training and education within the last year	3.14	0.97	1	4
satisfaction10	There is a good atmosphere and sense of community at my workplace	3.23	0.77	1	4
satisfaction11	I am satisfied with my workplace	3.48	0.66	2	4
satisfaction12	My opinions are taken seriously	3.42	0.69	2	4
satisfaction13	My coworkers want to do a good job	3.42	0.61	2	4
satisfaction14	I have meaningful and stimulating tasks	3.59	0.58	2	4
work absenteeism	I have had absence(s) from work in the last 18 months	6.35	6.38	0	30
total teaching years	Total years teaching	20.23	10.84	1	42
age	Age in years	49.32	9.4	23	65

In Table 1, we also report the minimum and maximum standard deviation means. All variables have a considerable dispersion. The mean varies considerably between the variables for job satisfaction. Questions 8 and 14 have the largest mean for job satisfaction. These questions focus on teachers' satisfaction with their relation to the parents (#8) and satisfaction with stimulating and challenging tasks (#14). Questions 1 and 3 stand out as the lowest mean for job satisfaction. These questions both concern a lack of resources [i.e., time (#1), materials, and equipment (#3)]. In other words, teachers like their jobs, but some wish for more resources. Work absenteeism was measured by questioning, "How many days have you been absent from work the last 18 months?" The usual way is to ask for an evaluation of this variable of the course of 9-12 months since the school year spans 12 months. The disadvantage of using this time interval is that you get many zeroes, which considerably complicate the analysis considerably. If you use an 18-month interval, you can reduce the number of zeroes- count series.

On average, special educators are absent from work about six days per 18 months. However, the standard deviation is roughly as large as the mean and, thus, the variance is far greater than the mean. This suggests that the variable is overdispersed. Note that this variable had missing vales. As the missing values are on the outcome and greater than 20%, multiple imputations seemed undesirable to us.

Table 1 also shows the teachers' total years of experience as educators and their chronological age. The mean was roughly 49 and the maximum was 60. The typical special educator had 20 years of experience and, at most, 42. Five questions were asked that pertained to teaching students with disabilities. Again, the questions ranged from agree (=4), somewhat agree (=3), somewhat disagree (=2), and disagree (=1). The questions are found in Table 1.

Measurement

Prior to the analysis, we conducted principal axis factoring (PAF). Factor analysis validates that the variables correlate with a principal factor and are used to assess the number of dimensions (one or several). We used PAF because we assume an underlying latent variable (i.e. a factor score); that is, self-efficacy and job satisfaction. Thus, our method of choice matters for the assessment of the construct validity. Methods such as principal component analysis (PCA) do not assume a latent variable (or error). Technically, PAF and PCA treat the diagonals of the input correlation matrix in different ways. PAF has also benefits in small samples. PAF can deal with small sample sizes and skewed data (due to the ordinal scale).

Table 2. Factor analysis with principle axis factoring (PAF)

Variable	PA1	PA2	h2	u2	com
efficacy1		**0.41**	0.19	0.81	1.25
efficacy2		**0.80**	0.66	0.34	1.04
efficacy3		**0.76**	0.62	0.38	1.13
efficacy4		**0.67**	0.47	0.53	1.06
efficacy5		**0.45**	0.26	0.74	1.52
satisfaction1	**0.40**		0.16	0.84	1.01
satisfaction2	**0.63**		0.43	0.57	1.17
satisfaction3	**0.52**		0.27	0.73	1.04
satisfaction4	**0.69**		0.51	0.49	1.11
satisfaction5	**0.74**		0.56	0.44	1.03
satisfaction6	**0.65**	**0.33**	0.52	0.48	1.48
satisfaction7	**0.70**	**0.35**	0.61	0.39	1.48
satisfaction8	**0.45**		0.23	0.77	1.29
satisfaction9	**0.35**		0.13	0.87	1.14
satisfaction10	**0.69**		0.51	0.49	1.12
satisfaction11	**0.67**	**0.31**	0.54	0.46	1.42
satisfaction12	**0.67**	**0.33**	0.56	0.44	1.45
satisfaction13	**0.55**		0.32	0.68	1.13
satisfaction14	**0.65**		0.48	0.52	1.29
SS loadings	5.31	2.71			
Factor analysis with PAF above .3 as blank					

The Eigen values and scree plot indicated 2 or 3 principal factors. We decided to extract 2 principal factors. Table 2 reports the loadings above 0.3 that assumed uncorrelated factors (varimax rotation). As a rule of thumb, we want loadings that are at least above 0.3 and 0.9 or lower. Cross loadings exist, but these are below 0.3 in magnitude (except for one variable). Thus, we were reasonably confident with a 2-factor solution. We wanted to evaluate the internal consistency and reliability of our estimates. First, we computed Cronbach's Alpha. Cronbach's Alpha was acceptable at 0.77, 95% CI[0.7 0.84] for self-efficacy for inclusive education. For job satisfaction, the internal constancy was good at 0.89. 95% CI[0.86 0.92]. As Cronbach's Alpha is the upper bound of the reliability, we also computed the lower bound (i.e. Guttman's lambda2). The expected values for lamda2 was 0.89 for job satisfaction and 0.78 for self-efficacy for inclusive education, which means that 11% and 22% of the estimates were due to errors, on average. Finally, the split half reliability (Lamba4) was 0.76 for efficacy for inclusive education and 0.95 for job satisfaction. In other words, we can find that our measures have an acceptable to good reliability.

Data Analysis

Prior to the analysis, we standardised all predictors to z-scores, which means that we subtracted the mean and divided by one standard deviation. Practically, our measures can be interpreted as having a mean of 0 and a standard deviation of 1. For the measures of self-efficacy for inclusive education and job satisfaction, we

averaged the z-scores. For age and years of teaching, we added a squared term to adjust for potential nonlinearities (i.e., the ups and downs of teaching).

In the first step of the analysis, we conducted linear regression with job satisfaction as an outcome. The residuals were normal without a pattern or nonconstant variance. We also conducted the analysis with the factor scores instead of the average z-scores. The results were identical. We chose to estimate a linear regression with average z-scores for simplicity of interpretation. Running 14 ordinal regressions seems unattractive for presentation. A structural equation model (SEM) might have been preferred, but such a model requires a large set of parameters consuming our degrees of freedom.

In the second step, we conducted negative binominal regression (NBR) with work absenteeism (Hilbe, 2014). We choose NBR because our variable is a count variable. As our count variable has a variance that is greater than the mean, the outcome is overdispersed. Overdispersion makes a Poison regression unrealistic. By contrast, NBR is ideal as we have no inflation of zeroes and overdispersion. Again, a SEM model may have been preferred to estimate mediation with measurement error. However, that would require sacrificing degrees of freedom. For diagnostics, the residuals showed no indication of nonconstant error variance or functional misspecification. All analysis were conducted in R (R Development Core Team, 2013). Regression tables were generated with the aid of the stargazer package (Hlavac, 2015).

Results

In Table 3, we report our regression models. The linear regression model includes coefficients and standard errors in parentheses. Job satisfaction is the outcome (standardised). The constant is the value when all predictors are 0 (i.e., at the mean because all have been standardised).

Table 3. Regression models of job satisfaction and work absenteeism

	Regression Models	
	Dependent Variable:	
	Job Satisfaction(z)	Work Absenteeism
	OLS	*negative binomial*
	(1)	(2)
Job satisfaction(z)		-0.45^{***}
		(0.15)
Self-efficacy for inclusive education (z)	0.41^{***}	0.17
	(0.08)	(0.14)
Age(z)	0.02	0.03
	(0.09)	(0.14)
Age(z) squared	0.03	0.01
	(0.05)	(0.08)
Total teaching years(z)	0.03	-0.14
	(0.08)	(0.13)
Constant	-0.03	1.79^{***}
	(0.07)	(0.12)
Observations	111	111
R^2	0.21	
Log likelihood		-319.32
theta		1.41^{***} (0.25)
Residual std. error	0.60 (df = 106)	
F statistic	7.17^{***} (df = 4; 106)	
Note:		*p **p ***p<0.01

From Table 3 we can see that age and experience do not seem to have a statistically significant association with job satisfaction. By contrast, self-efficacy for inclusive education (SEIE) is positively associated with job satisfaction. The association is statistically significant. Recall that the predictors are scaled by a standard deviation (SD). A special educator with one SD greater SEIE report, on average, 0.41 SD greater job satisfaction when all other predictors are at their typical values. In other words, SEIE has a substantial predictive importance for job satisfaction. The practical significance of the result is that special educators' confidence in their own work matters for predicting their enjoyment of work. Overall, the model explains about 21% of variation in job satisfaction. Given the small number of predictors in the model, we consider the r-square to be moderate. Next, we turn to the importance of SEIE and job satisfaction for work absenteeism.

In the second regression model in Table 3, we report the negative binomial regression (NBR) with work absenteeism as the outcome. An NBR uses the natural log as a link function. In practical terms, this means that we interpret the model as the approximate percentage change, or by exponentiation or using the derivative. The predictors are, again, standardised.

First, we note that age and experience have small coefficients that are not statistically significant. Second, surprisingly, SEIE is positively associated with work absenteeism. An SD difference in SEIE is associated with an approximately 17% increase in work absenteeism for a SD change in, on average, holding all other predictors at their typical values. However, the confidence bands overlap with zero. Therefore, we should not trust this association, even though we would like to do so. Third, job satisfaction is negatively associated with work absenteeism. In other words, a special educator with one SD greater has approximately 45% lower work absenteeism, on average, holding all other predictors at their typical values (or, more precisely, a reduction of $\left[\exp(\hat{\beta}) - 1 * 100 =\right]$ 36% in absence incidences).

In addition to the coefficients, we may be interested in the partial derivative (a.k.a. the predicted marginal change, partial effects). We care about the partial derivative because, unlike linear regression, NBR models a nonlinear relationship. The derivative is the incremental changes in the outcome for a unit difference in the predictor. In other words, it is the instantaneous rate of change of the slope of the tangent line on a curve at a given point. The derivative is, on average, an associated reduction of $(\exp(X\beta) * \hat{\beta}=)$1.85 in the expected count in the expected days of work absenteeism, holding all predictors at their mean. As the sample size is small, we might also consider the average derivative, which is an expected reduction in the count of absent days by 2.86.
From the perspective of practical significance, our result suggests that SEIE has little importance for protecting special educators from work absenteeism. Instead, reducing work absenteeism seems to be about promoting job satisfaction. This outcome suggests that SEIE might have an indirect association—although not tested—with work absenteeism via job satisfaction. We will return to this later. In the next section we will investigate the association at hand.

The association is plotted in Figure 1. Figure 1 has the job satisfaction on the X-axis and the predicted count of work absenteeism in days per 18 months on the Y-axis, with 95% confidence intervals (shaded with grey). Recall that the mean count was around 6 days. The X-axis is in standard deviations. The plot also includes a rugged plot (tiny vertical bars) that indicates where the sample values are located. For instance, most of the sample values are located to the right. The confidence intervals indicate where 95% of the values would fall under the assumption of repeated sampling. The confidence bands get larger to the left (a larger margin of error due to sampling variability). This is due to the fact that teachers with very low work satisfaction are being observed. Clearly the graph portrays the negative relationship. In addition, we learn about the predicted count for a given level of job satisfaction. To get a feeling concerning the overall predictive power of the model, we computed the correlation between the fitted values and the observed outcome. The result is a correlation of 0.3, or a predictive power of 9%. Accordingly the predictive power is somewhat low, suggesting that further predictors need to be added to the model.

Finally, we attempted to evaluate a possible direct association using path analysis with the Medflex-package in R, which allows for non-parametric bootstrap estimation. Although Medflex is intended for causal analysis and thus uses a weighting estimator, our purpose here –to reiterate– is descriptive. Thus, the weighting may be conceived as an additional adjustment. Here we used a Gaussian and quasi-Poisson family, respectively. However, the confidence interval of the direct and indirect test of association had wide bands and the estimated exponent coefficients included a 1.0 ($\exp(\hat{\beta}_{indirect})$=0.8 CI [0.73:1.05]). In other words, the indirect and direct association were not statistically significant. In practical terms, this means that while it is tempting to hypothesise an indirect association, we did not find one. In summary, SEIE is associated with job satisfaction, whereas job satisfaction is associated with absenteeism. Thus, we find support for both our hypothesis. Next we discuss the results in a broader context.
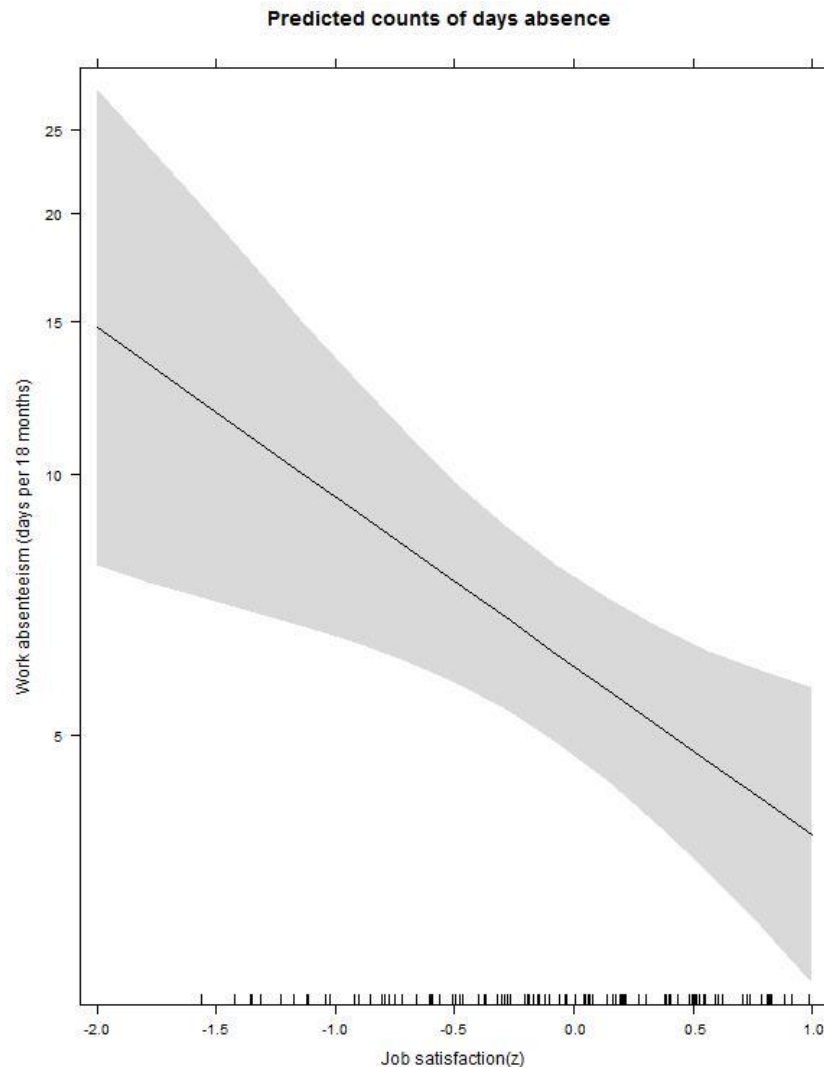
Predicted counts of days absence

Figure 1. Predicted counts from the negative binomial model

Discussion

Previous research has shown that teachers endure demanding working conditions, thus predicting low feelings of job satisfaction and high work absenteeism (Skaalvik & Skaalvik, 2011, 2015; Liu & Ramsey, 2008). However, previous research is unsatisfactory because it tends to neglect variation within the teaching profession (e.g. special educators teaching students with an ID has not been taken into account). Thus, the current study is a contribution by emphasising special educators teaching students with an ID and the importance of psychological predictors. In the current study we wanted to describe Swedish special educators' job satisfaction, self-efficacy, and work absenteeism in Swedish special needs comprehensive schools (Grundsärskolan).

As expected, special educators report dissatisfaction with time, equipment, and materials. Similar to teachers in general, these physical aspects indeed matter. Perhaps the dissatisfaction with physical aspects reflects how the special educators endure the effects of NPM (Alexiadou & Lundahl, 2016). Although our finding mostly support previous studies, we do diverge from previous research (Kjellström, Almqvist, & Modin, 2016; Skaalvik & Skaalvik, 2015; Clotfelter et al, 2007). While teachers' rates of dropout and absenteeism have increased, the special educators in our sample have a low rate of absenteeism (roughly 6 days per 18 months).
From a policy perspective, we must raise the question of why special educators are satisfied with their working conditions (excluding lack of time, equipment, and materials). Certainly, small class size may be critical and there may be other mechanisms at work that require further studies (Williams & Gersch, 2004; Plash & Piotrowski, 2006).

Previous studies have investigated special educators in general or special educators teaching students with severe emotional and behavioral disabilities (Ervasti, 2011; Stempien & Loeb, 2002) while our target group was special educators teaching students with ID. Teaching students with severe emotional and behavioral disabilities can be very demanding (Stembien & Loeb, 2002). Teaching students with an ID can, of course, also be demanding. However, students with an ID do not necessarily have behavioural problems. Moreover, the teaching of students with an ID occurs in small groups. Another explanation may be that Swedish special educators teaching students with an ID are well prepared to meet the daily challenges because they receive more education than their counterparts in other countries. Besides having teaching degrees for mainstream schools, they also have degrees as special education teachers (advanced level, 90 credits) (Göransson, Lindqvist & Nilholm, 2015).

However, our approach is best understood within its limitations as a descriptive (i.e. non-causal) effort. First, we have a nonrandom quota sample. Strictly speaking, the methods we use do assume a simple random sample. Thus, simulation-based methods might have been preferable. Nevertheless, we still argue that our sample is unique and the larger sample of the population is difficult to obtain. Thinking in terms of samples rather than populations is useful. Second, as we have not estimated measurement models, we do not properly account for measurement error. The methods we use assume no measurement error, so our results might be contingent on measurement error. Third, we cannot rule out the fact that the lack of relationship is a matter of insufficient statistical power (i.e., the probability of estimating a magnitude, given that it exists). Statistical power is inversely related to small samples and magnitudes of differences. In practical terms, larger samples are always better. Fourth, our analysis might be sensitive to omitted variable bias. We cannot disregard the possibility that other predictors matter for special educators' working conditions. Specifically, we lack measures of structural predictors such as wages, employment contracts, and the size of the workplace. Structural predictors may correlate with both work absenteeism and job satisfaction. Although employment contracts were included in our survey, almost all educators were on a permanent contract. Another set of predictors may be the individual coping strategies, which may correlate with both self-efficacy and job satisfaction. Fifth, our analysis is cross-sectional. Ideally we should have used longitudinal data analysis such as panel models to study change over time.

Conclusion

In response to our first research question, we conclude that self-efficacy for inclusive education and job satisfaction were associated in our study. In other words, special educators who have a high degree of self-efficacy for teaching students with disabilities enjoy their work more (i.e., have high job satisfaction). Thus, we find support for our first hypothesis. In response to our second research question, we conclude that job satisfaction is associated with work absenteeism. Thus, we found support for our second hypothesis. However, there is no indirect association between work absenteeism and self-efficacy.

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Appendix. Questions from the Survey (translated) Included in the Present Study

Sex
  ☐   Male
  ☐   Female
Year of birth 19_____
How many years have you worked as a teacher?_____

A number of questions will be asked where you need to take a stance concerning your confidence in teaching. Sometimes it is hard to know exactly. Choose the alternative that fits you the best. It is important that you answer all questions.
Strongly disagree (1) disagree (2) agree (3) strongly agree (4)

I think I am good at teaching in general
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

I think I am good at teaching students with disabilities
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

I think I am good at teaching students with intellectual disabilities
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

I think I am good at teaching students with language impairment
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

I think I am good at teaching students with autism
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

A number of questions will be asked where you need to take a stance concerning your job satisfaction. Sometimes it is hard to know exactly. Choose the alternative that fits you the best. It is important that you answer all questions
Strongly disagree (1) disagree (2) agree (3) strongly agree (4)

I have enough time or resources
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

I have clear, reasonable, and meaningful goals
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

I have the materials and equipment I need to do a good job
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

I know what is expected of me at work
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

I am allowed to participate in decision-making
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

I have a good relationship with the chief of staff
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

I have a good relationship with my coworkers
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

I have a good relationship with parents
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

I have had a chance to participate in training and education within the last year
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

There is a good atmosphere and sense of community at my workplace
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

I am satisfied with my workplace
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

My opinions are taken seriously
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

My coworkers want to do a good job
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

I have meaningful and stimulating tasks
☐1 Strongly disagree   ☐ 2   ☐ 3   ☐ 4 Strongly agree

How many days have you been absent from work the last 18 months?
_____