# A longitudinal descriptive study of sickness absence in sequential cohorts of new graduated nurses in Sweden between 2001 and 2006

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# 1 Preface (in Swedish)

LUST-projektets huvudsakliga syfte är att studera stress och hälsa i samband med övergången mellan högskoleutbildning och arbetsliv. I publikationer från projektet har fokus riktats mot både utbildningsfrågor samt arbetslivsfrågor (se lista över rapporter från projektet i kapitel 6 nedan). Föreliggande rapport skiljer sig lite åt från tidigare publikationer och redovisar en analys av Statistiska Centralbyråns sammanställning av registerdata kring sjukfrånvaro. Nationella avgångsklasser från sjuksköterskeutbildningen har följts prospektivt under de första åren efter examen och förekomst av sjukskrivningsepisoder mellan 15 och 90 dagar samt över 90 dagar har beräknats.

Ett stort tack till forskargruppen kring Datakällan vid Mälardalens Högskola vars kompetens och engagemang har varit en förutsättning för genomförandet av denna analys. Tack också till Ingrid Wännström för allt noggrant arbete du lagt ned på att sammanföra och analysera databaserna. Projektet har möjliggjorts genom forskningsanslag från AFA Försäkring.

Stockholm den 26 februari 2013

Petter Gustavsson vetenskaplig ledare för LUST-projektet

#### 2 Introduction

Absenteeism, i.e. not coming to work when scheduled, is an expensive and difficult problem for society and work organisations. Absence from work due to sickness, i.e. sickness absence, is an important occupational problem and has an impact on productivity, the costs of health insurance and the individual. The most common reasons for sickness absence in Sweden is related to musculoskeletal and mental diseases (AFA insurance, 2010; The Social Insurance Agency in Sweden, 2010). The Social Insurance Agency in Sweden has shown that sickness absence is more common among some occupational groups [see, for example, (Mulder, 2010)]. For example, health care employees are overrepresented among those who are sick for longer than 60 days (Lidwall, 2007).

The growing shortage of registered nurses (RNs) in most countries has become a challenge for society given that the demand for health care continue to grow alongside with an ageing nursing workforce and nurses not willing to work under current conditions (Buchan and Aiken, 2008). The shortage of RNs not only creates a financial burden, but also impairs patient safety (Rauhala et al., 2007). Unruh et al. (2007) showed that when both RN absenteeism and patient load were high there was an increase in patient deaths. Increased patient-associated workload, i.e. too high workload in relation to personnel, has also been found to increase sickness absence among RNs (Rauhala et al., 2007).

Published studies of sickness absence among RNs use many different outcome measures (Davey et al., 2009), and different countries have different insurance regulations, which make it difficult to compare study results. Large studies of the frequency of sickness absence among RNs that are not based on self-reported data are rare, perhaps largely due to concerns about the privacy of information. Study results that are generalizable to RNs in a specific country or region are also few, however an exception was a survey from Canada (Shields and Wilkins, 2005). This study showed that 61% of 18,676 RNs were absent from work during 2004 for health-related reasons. Those who had been absent reported absence on an average of 23.9 days/year from work, and 14% of all RNs reported being absent for 20 days or more. Another large Canadian study (Gorman et al., 2010), based on payroll data, showed that RNs were sick for 5.9% of their working time. A population-based

registry report (Mulder, 2010) showed that during 2008 in Sweden RNs were absent for ten days per employee and that the average duration of sick leave longer than 14 days was 73 days.

The majority of studies of sickness absence among RNs investigate factors influencing sickness absence, for example poor self-reported health (Josephson et al., 2008, Schreuder et al., 2010; Ferreria et al., 2012), low social support at work (Bourbonnais and Mondor, 2001), job satisfaction (Gauci Borda and Norman, 1997, Siu, 2002; Roelen et al., 2013), burnout and job stress (Davey et al., 2009, Schreuder et al., 2010), as well as musculoskeletal diseases, hypertension, minor psychiatric disorders and insomnia (Ferreria et al., 2012). Moreover, absenteeism among RNs has been identified as an antecedent to turnover. Both Gauci Borda and Norman (1997), as well as Josephson et al. (2008) have found that the same factors that influenced turnover also were predictive of sickness absence of longer than 28 days among RNs (i.e. working in geriatric care, being socially excluded by superiors and/or workmates, negative effects of organizational changes and poor self-rated general health). Thus, the link between sickness absence and turnover shows that the problem with sick leave may have implications and long term consequences for the nursing workforce.

Population based research into the prevalence of sickness absence among new graduate nurses is not available to our knowledge, despite new graduate nurses being exposed to challenging working conditions such as unsatisfactory work schedules, dissatisfaction with salary, burnout, high work demands, and undermanned nursing staff (Flinkman et al, 2008) while making their transition to professional practice. The objective of this study was therefore to prospectively examine the prevalence of sickness absence among several national cohorts of new graduate RNs in Sweden during their first years in the profession.

### 3 Method

#### 3.1 Design and study population

This is a longitudinal, descriptive study examining the prevalence of sickness absence in sequential cohorts among all RNs who graduated the academic years 2000/2001, 2001/2002, 2002/2003, 2003/2004, 2004/2005 and 2005/2006 in Sweden (N=20,268). All data are taken from social insurance registers hosted by Statistics Sweden (see below).

#### 3.2 The Swedish social insurance system

Social insurance in Sweden is an integral part of the Swedish social security system and covers everyone living or working in Sweden. It provides financial protection for families and for persons with disabilities, work injuries or illness. People working or living in Sweden today can obtain sickness benefits from the employer for the first 14 days of illness (except for the first sick day, when no sickness benefits are usually available) and from the Swedish social insurance agency for sickness periods longer than 14 days. Sickness absence longer than seven days requires a doctor's certificate, which is used by the employer and the social insurance agency to assess the employee's entitlement to sickness benefit. Depending on the health status, sickness benefits can vary from 25-100%.

#### 3.3 Data source and included variables

All data were obtained from Statistics Sweden, a government agency that supports and coordinates the Swedish system for official statistics, i.e. statistics produced in accordance with the statistical act and ordinance as required by Swedish official regulations. Data for this study originate from the social insurance agency in Sweden and a Swedish insurance company, AFA Insurance (prevalence of sickness absence, 2001-2006), the Swedish tax agency (demographic characteristics and occupational status) and the national register of higher education (graduation). Occupational status was registered in November each year by the Swedish tax agency. Graduations were reported to the national register of higher education on 1 July and 1 January each year, which means that most graduations were probably reported on 1 July each year because the fall term usually ends in late January in Sweden. Sickness absences examined in this study were those reported from the Swedish social insurance agency (sickness absence 15-90 days) and AFA Insurance (sickness absence more than 90 days) during 2001-2006. The Swedish insurance regulations have changed over time. From 1 July 2003 to 31 December 2005, employers in Sweden were responsible for the first 21 sick days instead of the first 14 days, which means that for this period we examined sickness absence longer than 21 days instead of 14 days. Sickness absence studied here made no distinction between full- and part-time sickness absence and excluded maternity leave and child care. In addition, this study reports the prevalence of at least one sickness episode within a year.

#### 3.4 Ethical considerations

The study has been approved by the regional research ethics review board in Uppsala, Sweden (Dnr 2004: Ö-502).

#### 3.5 Data analysis

Descriptive statistics were used to examine the prevalence of sickness absence each year (2001-2006) among the six cohorts: RNs who graduated in academic years 2000/2001, 2001/2002, 2002/2003, 2003/2004, 2004/2005 and 2005/2006. To examine the prevalence of shorter and longer sickness absence, we chose to examine sickness absences of 15-90 days and longer than 90 days. The expression "longterm" in relation to sickness absence has no agreed definition, but recent custom in Sweden has been to use a period of 90 consecutive days to denote "long-term". When examining the prevalence of sickness absence of 15-90 days, we included all RNs who graduated in academic years 2000/2001, 2001/2002, 2002/2003, 2003/2004, 2004/2005 and 2005/2006 in Sweden and were employed as an RN in Sweden in the respective calendar year (2001, 2002, 2003, 2004, 2005 and 2006). When examining the prevalence of sickness absence longer than 90 days, we excluded the criterion that the new graduate RNs should be employed as an RN during the respective year, because it is possible that those who were sick for longer periods close to graduation had not yet found a job. The analyses were conducted in SPSS, version 18.

#### 4 Results

Demographic characteristics were similar for the RNs across graduation years; the majority were women, unmarried, Swedish citizens, and almost half were around the age of 30 (Table 1). Of the RNs, 84-93% were employed in the November following graduation (i.e. November 2001 for those graduating in academic year 2000/2001 and November 2002 for those graduating in academic year 2001/2002, etc.) and 93-96% were employed in the following year studied (data not shown).

#### 4.1 Prevalence of sickness absence of 15-90 days

The prevalence of a sickness absence episode (i.e. one or more occasions per year) of 15-90 days ranged between 6.6-8.8% in the first year of the profession for all cohorts. The prevalence of sickness absence varied from 7.9-9.5% among women and 2.8-5.2% among men during that period i.e. the first year of employment (data not shown). In the following year i.e. the second year of employment the sickness absence ranged between 11.3-14.8% for all cohorts (Figure 1). In the third and fourth years in the profession, the prevalence of sickness absence ranged between 13.1-14.3% and 14.2-15.6% respectively. Comparing the figures for women and men from year two and subsequently, the prevalence of sickness absence varied from 12.4-17.1% among women and 3.8-8.1% among men (data not shown).

#### 4.2 Prevalence of sickness absence longer than 90 days

As shown in Figure 2, in all cohorts the prevalence of sickness absence longer than 90 days was less than 1% in the first year in the profession. The prevalence of sickness absence varied from 0.1-0.7% among women and 0-0.7% among men during that time (data not shown). The prevalence of sickness absence increased in the following year for all cohorts (Figure 2). For those who graduated in academic year 2000/2001, sickness absence increased throughout the time period (2001-2006), whereas for those who graduated in 2001/2002 and 2002/2003 the prevalence of sickness absence was relatively unchanged after two years in the profession. During year two and subsequently, the prevalence of sickness absence varied from 1.5-4.0% among women and 0.3-2.0% among men (data not shown).

|              | Graduate<br>2000/2001 | d    | Graduate<br>2001/2002 | d    | Graduate<br>2002/2003 | d    | Graduate<br>2003/2004 | d    | Graduate<br>2004/2005 | d    | Graduate<br>2005/2006 | d    |
|--------------|-----------------------|------|-----------------------|------|-----------------------|------|-----------------------|------|-----------------------|------|-----------------------|------|
|              | N=2744                |      | N=2937                |      | N=3074                |      | N=3391                |      | N=4012                |      | N=4110                |      |
| Year         | 2001                  |      | 2002                  |      | 2003                  |      | 2004                  |      | 2005                  |      | 2006                  |      |
| Gender       | Ν                     | %    | Ν                     | %    | Ν                     | %    | Ν                     | %    | Ν                     | %    | Ν                     | %    |
| Women        | 2407                  | 87.7 | 2563                  | 87.3 | 2632                  | 85.6 | 2966                  | 87.5 | 3492                  | 87.1 | 3554                  | 86.5 |
| Men          | 337                   | 12.3 | 372                   | 12.7 | 440                   | 14.3 | 424                   | 12.5 | 512                   | 12.9 | 553                   | 13.5 |
| Age          |                       |      |                       |      |                       |      |                       |      |                       |      |                       |      |
| < 25         | 652                   | 23.8 | 651                   | 22.2 | 640                   | 20.8 | 713                   | 21.0 | 757                   | 18.9 | 867                   | 21.1 |
| 25 - 34      | 1341                  | 48.9 | 1384                  | 47.1 | 1463                  | 47.6 | 1563                  | 46.1 | 1953                  | 48.7 | 2033                  | 49.5 |
| 35 - 44      | 615                   | 22.4 | 748                   | 25.5 | 758                   | 24.7 | 899                   | 26.5 | 1020                  | 25.4 | 959                   | 23.3 |
| 45 - 54      | 135                   | 4.9  | 150                   | 5.1  | 208                   | 6.8  | 213                   | 6.3  | 274                   | 6.8  | 239                   | 5.8  |
| 55 - 64      | 1                     | 0    | 2                     | 0.1  | 3                     | 0.1  | 2                     | 0.1  | 7                     | 0.2  | 9                     | 0.2  |
| Missing      | 0                     |      | 2                     |      | 2                     |      | 1                     |      | 1                     |      | 3                     |      |
| Mean         | 30.4                  |      | 31.0                  |      | 31.4                  |      | 31.6                  |      | 31.6                  |      | 31.1                  |      |
| Civil status |                       |      |                       |      |                       |      |                       |      |                       |      |                       |      |
| Unmarried    | 1869                  | 68.1 | 1881                  | 64.1 | 1994                  | 64.9 | 2174                  | 64.1 | 2616                  | 65.2 | 2766                  | 67.3 |
| Married      | 704                   | 25.7 | 830                   | 28.3 | 873                   | 28.4 | 993                   | 29.3 | 1120                  | 27.9 | 1077                  | 26.2 |
| Divorced     | 165                   | 6.0  | 210                   | 7.2  | 195                   | 6.3  | 219                   | 6.5  | 263                   | 6.5  | 258                   | 6.3  |
| Widow/-er    | 6                     | 2.0  | 14                    | 0.5  | 10                    | 0.3  | 4                     | 0.1  | 12                    | 0.3  | 6                     | 0.1  |
| Citizenship  |                       |      |                       |      |                       |      |                       |      |                       |      |                       |      |
| Swedish      | 2661                  | 97.0 | 2853                  | 97.1 | 3003                  | 97.8 | 3319                  | 97.9 | 3905                  | 97.4 | 4003                  | 97.5 |
| Other        | 83                    | 3.0  | 82                    | 2.8  | 69                    | 2.2  | 71                    | 2.1  | 106                   | 2.6  | 104                   | 2.5  |

**Table 1.** Demographic characteristics of all new graduate nurses in Sweden on graduation, 2001-2006.



**Figure 1.** Percentage of new graduate nurses working as a nurse and having at least one period of sickness absence of 15-90 days between 2001 and 2006.



**Figure 2.** Percentage of new graduate nurses having at least one period of sickness absence of over 90 days between 2001 and 2006.

## 5 Discussion

The results of this large longitudinal study showed that the prevalence of sickness absence longer than 14 days among the new RNs was up to 10% after the first year in the profession and increased in the second up till 17%. Subsequently sickness absence figures were stable or increased. The rather sharp increase after the first year of employment might be a real increase in sickness absence, but may partly be due to an underestimate of sickness absence in the first year in the profession (see discussion below). Sickness absence is a known problem among RNs [see, for example, (Mulder, 2010, Shields and Wilkins, 2005)], and this study showed, regardless of an underestimation of sickness absence the first year in the profession, that this problem begins early in RNs' careers and continues over time.

Published studies of sickness absence use many different outcome measures, and the terminology seems not to be standardized (Davey et al., 2009). These factors, combined with variations in insurance regulations between nations and over time, make it difficult to compare the study results. However, comparable data on sickness absence based on all employed RNs in Sweden are available from Statistics Sweden (Statistics Sweden, 2011). A comparison between our results and all RNs in Sweden for 2001-2006 shows that in this present study the new graduate RNs had a slightly higher prevalence of sickness absence of 15-90 days in year four and subsequently in the profession (independently of graduation year) (14.2-15.3% versus 12.0-13.5%). In 2001-2002, all RNs in Sweden had a prevalence of 14.9-15.3%, which is equivalent to the prevalence found in this study for new graduate RNs in year four and subsequently in the profession. The opposite is apparent for long-term sickness absence, where new graduate RNs generally had a lower prevalence compared with all RNs in Sweden (0.2-3.5% versus 3.2-4.0%). The differences in the prevalence of sickness absence between new graduate RNs and all RNs in Sweden in the respective years may even out, because the total sickness absences seemed equal across the two groups when the prevalence's of shorter and longer sickness absences are added together. The differences in the prevalence of sickness absence might be a result of new graduate RNs struggling with shorter periods of sickness absence before taking long-term sickness absence.

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Unfortunately, we were not able to examine reasons for sickness absence in this study. Also, we have not found reasons for sickness absence among new graduated RNs explored in earlier literature. Problems early in the RNs career are however investigated. Potential reasons for sickness absence among new graduated RNs might therefore be related to that they experienced a stressful transition to the workforce (Price, 2009; Wu et al., 2012) and high levels of burnout (Rudman and Gustavsson, 2011). Stressors for new graduate RNs have been related to not feeling confident or competent, making mistakes because of increased workload and responsibility, and encountering new situations, surroundings and procedures (Oermann and Garvin, 2002). The stressful situation for new graduate RNs has also been related to their experiences during education (Rudman and Gustavsson, 2012) and of the incongruence between the environment in which they were trained and educated and the professional setting into which they are introduced (Price, 2009). Rudman and Gustavsson (2011) showed that around 20% of new graduate RNs in Sweden reported high levels of burnout at some point during their first three years after graduation. The highest level of burnout was observed two years after graduation. Most changes in burnout levels were accompanied by concurrent changes intentions to leave the profession. Moreover, this longitudinal study showed that the negative development of burnout was associated with not feeling wellprepared for a nursing job, a lack of interest in one's nursing studies, self-rated health, and depressive mood in the final year of education (Rudman and Gustavsson, 2011). Spence Laschinger et al. (2012) found, among other, that job demands predicted burnout and poor mental health among new graduate RNs.

Other reasons for sickness absence might be related to physical demands, as musculoskeletal problems are the most common reasons for sickness absence longer than 14 days for all employees in Sweden (Mulder, 2011). Musculoskeletal problems are also a problem among RNs world-wide (Fronteria and Ferrinho, 2011) as well as among new graduated RNs (Wu et al, 2012). There is a lack of longitudinal studies on new graduate RNs occupational health, focusing on physical problems, that has followed RNs from nursing education to working life, but there are a few exceptions. For example, the study by Videman et al. (2005) found that the prevalence of back pain increased from 31% on entry to nursing school to 72% on leaving, and further to 82% after five years as a nurse. The high prevalence and the increase of back pain are in line with our results on prevalence of sickness absence, which also is high and continues over time.

In a previous longitudinal study on new graduates, increases in stress-related health problems was found to be most pronounced between the first and second year after employment (Rudman and Gustavsson, 2011). Similarly, all data presented here indicates an increase in health problems after the first year of employment. However, the rather sharp increase in the present data may partly be due to an underestimation of sickness absence during the first year in the profession. This underestimation may be related to that approximately half of the RNs did graduate in June and not in January each year. Thus, for these RNs, the first year comprise about four months less of employment. In an attempt to control for this, analyses were performed in each cohort selecting the group of RNs graduated a specific year but no longer registered as nursing students during spring term the same year. However, the results showed the same patterns of increase of sickness absence between year one and year two. Thus, although data on the exact date of graduation would have improved the validity of the sickness absence data during the first year of employment, overall the data for this study should be considered highly valid.

#### 5.1. Conclusion

The prevalence of sickness absence the first years in the RNs' careers found in this study indicates a need to develop strategies to prevent this costly problem, costly for the individual nurse as well as for the patient and health care organisation. The fact that this large, national study, based on registry data, show a higher prevalence among the group of new graduates (in comparison to the total RN workforce in Sweden) who has many years left in their careers, should be an incentive further study and test interventions and preventive measures to counteract this problem.

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Wu, T-Y., Fox, DP., Stokes, C., Adam, C. (2012) Work-related stress and intention to quit in newly graduated nurses. *Nurse Education Today*, **32**: 669–674

# 6 Rapporter

Forskargruppen kring LUST- och LÄST-projekten är en del av sektionen för psykologi, Institutionen för Klinisk Neurovetenskap, Karolinska Institutet. Som en del av verksamheten utges rapporter sammanställda i tre olika skriftserier. Skriftserierna benämns:

- A. Forskningsrapporter
- B. Arbetsrapporter
- C. Övriga rapporter

Följande rapporter har tidigare utgivits:

- No. B 2007:1. Longitudinell Undersökning av Sjuksköterskors Tillvaro (LUST-studien): En landsomfattande longitudinell enkätstudie av sjuksköterskestudenters hälsoutveckling och karriärval under utbildningsåren och i mötet med arbetslivet: Urvalsram, kohorter och genomförande 2002-2006. Gustavsson, P., Svärdson, Å., Lagerström, M., Bruce, M., Christensson, A., Schüldt-Håård, U., & Omne-Pontén, M.
- No. B 2007:2. Lärares Tillvaro i Utbildning och Arbete: LÄST-studien. Urvalsram, kohort och genomförande 2005-2006. Gustavsson, P., Kronberg, K., Hultell, D., & Berg, L-E.
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