



Brief Reviews

Sick Leave Determinants in the Healthcare Sector (Part I): A Review of Contextual Factors

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Background: This study aims to describe contextual factors that influence and contribute to sick leave in healthcare, especially in hospital settings. This review would provide a valuable, comprehensive, and evidence-based resource for readers interested in effective human resource management and healthcare or hospital workforce planning. This review referred to studies on the determinants of absenteeism in the healthcare setting. **Methods:** To ensure that pertinent papers (2004 – 2022) were identified, a literature search was performed searching Google Scholar, Econ Lit, PubMed, ResearchGate, ScienceDirect, Emerald Insight, Scopus, Medline, PsychInfo, and Web of Science. All abstracts were screened to identify papers that empirically investigated contextual factors of work absence in healthcare populations. A total of 126 papers were initially identified. These were reduced to 61 papers using pre-determined inclusion and exclusion criteria. **Results:** Contextual factors such as nature of work, cultural expectations, economic conditions, and seasonality have moderately strong associations with absence. There is a negative relationship between high psychological demands and work-related absenteeism. The key factors associated with sickness absence in healthcare staff were long hours worked, night shifts, changing rostering patterns, work overload and stress, physically demanding roles, poor social support. Other contextual factors such as cultural norms and expectations that support poor attendance reflected strong association with absence levels. Economic conditions are negatively associated with absenteeism as a result of job security fears. Absenteeism is more pronounced during winter and school holidays. **Conclusions:** The review concluded that interventions such as screening the prior attendance levels of potential employees would assist greatly in terms of absenteeism rates, while monitoring current absence patterns of existing employees will negate the development of cultural norms in the workplace. Many of the contextual related variables associated with high levels of absenteeism are reducible with the development of screening and monitoring tools.

This is Part I of a series describing sick leave determinants in the healthcare sector. Parts II and III will be published in April and July.

BACKGROUND

Absenteeism is any failure to report for or remain at work as scheduled, regardless of the reason.¹ Absenteeism generates substantial costs for social welfare and health care systems and, in the 2010s, expenditures on sickness benefits amounted on average to 0.8% of GDP in Organization for Economic Cooperation and Development “OECD” countries.² In that context, it is not surprising that a large body of empirical literature has been devoted to analysis of work absenteeism.³ Some of those studies are essentially descriptive in nature, while others attempt to identify the main factors associated with absenteeism, using either individual-level data or organizational-level studies.^{4–18}

Although absence definitions varied, a typological framework could be established using the following classifications of absence: voluntary or involuntary, planned, or unplanned albeit that some authors differentiate involuntary absenteeism (e.g., certified sickness) and voluntary absenteeism (e.g., annual leave or vacation, uncertified sickness). It has been further suggested that unplanned absence is often short-term and sometimes voluntary.¹⁹

A greater volume of studies exists regarding commercial/industrial settings and that literature has guided this review on the basis that certain elements and influencers of human behavior can be pertinent regardless of setting. Where healthcare studies relating to absenteeism are available, it is difficult to generalize their findings as the research base is fragmented and often rooted in small-scale case studies.²⁰ The studies on absenteeism are generally conceptual rather than studies of impact and, therefore, limited with regard to availability of qualitative or quantitative data. Also, the majority of studies on absenteeism

that do relate to healthcare originate in developed countries and mostly concentrate on nursing staff.^{21–24}

The most common type is sick leave.²⁵ However, absenteeism is a complex multi-factorial issue involving influences other than simply health. It has been suggested that factors such as lower job satisfaction, current sick pay arrangements and less demanding performance standards may be contributors.²⁶ The link between absenteeism and staff turnover has been reported.²⁷ High absenteeism in health care workers is a particular challenge, noting that the average health care worker between 25 and 54 years of age missed nearly 12 days of work per year as a result of illness or disability, in comparison to seven days in other sectors.²⁸ Therefore, this review aims to comprehensively discuss factors impacting absenteeism in the healthcare setting and consequences of this occurrence. This review is the most comprehensive and current regarding absenteeism in the healthcare setting. The scale of the topic is considerable and, therefore, the review is structured as three Parts dealing, in sequence, with Contextual factors, Organizational-level factors, and factors at the level of the individual.

METHODOLOGY

The approach adopted in this semi-structured narrative review was to examine contextual, published studies and to explore the impact of determinants on absence behavior, concentrating on the number of available studies within healthcare settings. While research identified included all staff categories within the healthcare setting, there is particular focus placed on the Nurses and Midwifery staff category due to its large cohort size, multiple grades, and diverse skills, which contribute to relevance across all healthcare facilities.

To ensure a comprehensive and accurate review of peer-reviewed articles and other relevant publications on absenteeism and related factors such as presenteeism, a systematic search was conducted initially to identify relevant source material. Databases accessed were Google Scholar, Econ Lit, PubMed, ResearchGate, ScienceDirect, Emerald Insight, Medline, PsychInfo, Web of Science and Scopus. Search terms included “absenteeism”, “absence rates”, “health”, “healthcare”, “hospital” and “nursing”, and these were used in multiple combinations. Articles were read and assessed for relevance. The inclusion criteria were (i) peer-reviewed academic journals published in English in the period January 2004–April 2022; (ii) research that focused on causal factors of absenteeism; (iii) articles with accessible abstracts and full text; (iv) annual surveys. Exclusion criteria were (i) editorials, commentaries, reviews, and duplicates; (v) conference abstracts. Annual company surveys were included namely to provide commercial data on absenteeism in the workplace. We included annual surveys from the Chartered Institute of Personnel Development with data submitted from companies. After screening the articles, associated reference lists were reviewed to identify additional citations that were not found directly by the search terms. Notably, while studies included were pub-

lished as late as April 2022, their data collection pre-dated COVID and, therefore, factors specific to COVID were not considered.

DEFINITION OF ABSENTEEISM

Absenteeism is a temporary absence from work (temporary withdrawal from an organization) for reasons such as illness, bereavement, or other personal issues.²⁹ Absenteeism leads to substantial human, social, and economic costs and, therefore, understanding the role of physical, psychological, work-related factors and psychosocial work factors is key to preventing this outcome.³⁰ Absences can be either short-term or long-term in duration. Davy *et al.*, found in their study of 71 papers, the most common measure of absenteeism reported was ‘absence frequency’ defined as the number of days absent (incidents) over a given period.¹⁷ Other measures used were total days, duration, and percentage. Absenteeism causes are often categorized with reference to the duration of absence, defined as the total length of time (e.g., number of days) an employee has been absent from work over a certain period regardless of the number of absence episodes. Absence duration is considered an indicator of ‘involuntary absenteeism’ resulting from the inability rather than unwillingness to work, for instance because of involuntary factors such as illness due to a reaction to job stress.³¹ Contrary to absence duration, absence frequency is considered an indicator of ‘voluntary absenteeism’ with the implication that there is some form of personal decision whether to attend work or not.³²

CAUSES OF ABSENTEEISM

Absenteeism causes can be complex and multi-faceted and, as set out, are often understood in terms of duration which infers voluntary or involuntary absence from work.³³ The causes can be categorized broadly in terms of physical and mental illness. The literature outlines several factors that have associations to absenteeism. Absence may be a genuine illness; occupational causes such as work-related injury or illness or attitude to work; social ailments such as family and carer responsibilities, bereavements or miscellaneous such as undiagnosed psychological or psychosocial problems. Minor illness remains the most common cause of short-term absence, followed by stress. Indeed, stress, acute medical conditions and mental ill health are the most common causes of long-term absence.³⁴ Studies from several countries have identified a variety of factors that are related to sickness-absence from work, including sociodemographic factors and psychosocial working conditions.^{35,36} However, there is a commonality of the causes of absence internationally.

Reports originating from healthcare settings also reported many of the same causes of absenteeism experienced in other sectors, but further identified specific challenges. Trinkoff, Storr and Lipscomb, in their US study, found that nurses in jobs where they worked with their head or arms in awkward postures were significantly more likely to be absent than those without such demands.³⁷ Muscu-

loskeletal system ailments were the most common complaints among nursing professionals.^{38,39} The 2005 Canadian Institute for Health Information Report stated that nurses with absenteeism totaling more than 20 days commonly reported high job strain, low supervisor support and high physical demands on the job, low control over practice, lack of respect from supervisors, or high role overload as factors responsible for absenteeism.⁴⁰ A Swedish study by Josephson *et al.*, found that nurses dissatisfied with the quality of care provided to patients had higher probability of being on long-term sickness absence.⁴¹ Work schedules and terms of contract have been identified as factors that could influence health workers' presence or absence at work.¹⁸ In essence, there is consensus that, in the healthcare setting, the physical nature of work and job stress has a significant impact on absenteeism.

CONTEXTUAL FACTORS

The negative effects on health of inadequate working conditions have long been recognized, but frequently these are only consciously perceived by workers and society at large through their most obvious consequences: occupational injuries and occupational illness.⁴² However, less specific ailments, such as musculoskeletal disorders, accounting for a great number of sick leave episodes, are related to working conditions including psychosocial factors.⁴³ Psychosocial work factors including high psychological demands and low job control have been associated with increases in work related absenteeism.⁴⁴

NATURE OF WORK

In their study of healthcare settings, Ticharwa *et al.*, found that incidences of absenteeism are linked to hours of work.⁶ The findings indicated that those who do double shifts or overtime were predisposed to incidences of absenteeism because of strain resulting from excessive work. Night rostering was also considered to be a contributory factor to absenteeism, as night workers were more prone to fatigue and chronic conditions; hence they tend to be absent more often. These findings are particularly relevant in the healthcare setting where overtime and night duty are commonplace.

Ticharwa *et al.*, analyzed the total hours lost per department and showed that absenteeism was more pronounced on inpatient wards, with all wards having more absenteeism hours compared to specialist departments.⁶ The study found that wards with older patients' subject to frailty, dementia and multiple long-term conditions had significantly higher average absenteeism per nurse than general medical wards. Similarly, a ward with a mixture of cognitively challenging patients and manual handling was associated a high absenteeism rate. Specialty departments had absence averages below the mean average.⁶ Similarly, hospice nurses can experience distressing events daily and thus may turn to support from co-workers or family members as a resource for coping.⁴⁵ Sickness leaves were commonly unplanned and of short duration (less than a week)

and were more frequently taken by nurses working in Intensive Care Units compared to general wards.¹²

Furthermore, Tripathi's study reported that nurses working in the ward areas took the highest number of unplanned sickness leave (7.36 days per absence), while planned sickness leaves were highest (64.8 days) among those in operating theatres.¹² Unplanned sickness was dominated by diseases of the respiratory tract, digestive system, infections, and injury. Planned sickness leaves mainly constituted pregnancy-related illness leave and was highest among younger nurses in operating theatres and intensive care units. Another influence on absenteeism is the changing of rostering patterns; moving nurses to cover shortages in other wards caused psychological unrest and contributed to absenteeism.⁴⁹ This may provide an explanation for the high absenteeism rates in nursing pools as this cohort is generally rotated across departments on a regular basis, sometimes daily. There are other contributory factors such as leadership skills and organization capabilities that may reduce stress. Also, there does seem to be evidence that more physically demanding roles do have a direct association with higher absenteeism levels.

CULTURAL EXPECTATIONS

Nyathi and Jooste proposed that absence "culture" can influence the absence patterns of health workers.⁵⁰ Contagion effects may also occur as workers respond in a similar fashion to co-workers being absent or alternatively being present when they might legitimately be absent (presenteeism). There are several studies of the contagion of moods being shared by employees, readily apparent and discussed among themselves.^{51,57} Attendance (i.e., previous attendance and perceived absence norm) was the best predictor of absenteeism, with greater than 50% significant results. If perceived absence norms, prior individual absence, or poor attendance records, have been high then current absenteeism may increase, as absence cultures may develop. When the culture supports poor attendance, future individual attendance will align itself with cultural norms and expectations.⁵⁹ Isah *et al.*, in their study among the entire staff of a hospital in Nigeria identified common causes of absence including: attendance at examinations, social events like marriage and burial, adverse weather conditions, and travel and transportation problems.¹¹ Overall, the literature demonstrates that it is important for administrators to screen prior absence behavior of potential employees, and monitor attendance behavior of current employees, for patterns in absenteeism as it appears to be a strong predictor of future absence levels.

ECONOMIC CONDITIONS

People are less likely to be absent from work because of sickness when they are faced with the potential threat of unemployment.⁵⁶ Empirical observations confirm that absenteeism is procyclical; that is, workers are on average less absent in times of bad economic conditions and high unemployment.^{54,55,60} For instance, if firms use individual work absence as a selection criterion in lay-off decisions and, as

Table 1. Included Articles describing Contextual Factors relevant to work absence.

Authors	Year	Title	Country	Factor
Wood <i>et al.</i> ¹³	2020	Recessionary actions and absence: A workplace-level study	United Kingdom	Stress-based
Barnett <i>et al.</i> ⁴⁵	2019	Satisfaction with work-family balance mediates the relationship between workplace social support and depression among hospice nurses,	US	Social support and psychological distress
Ticharwa ⁶	2018	Nurse absenteeism: An analysis of trends and perceptions of nurse unit managers	Australia	Hours of Work
Gianino <i>et al.</i> ⁵	2017	Estimation of sickness absenteeism among Italian healthcare workers during seasonal influenza epidemics	Italy	Seasonal
Shoss ⁴⁶	2017	Job insecurity: An integrative review and agenda for future research.	US	Economic
McMahon <i>et al.</i> ⁴⁷	2017	How to manage.. absenteeism	Ireland	Trends
Shi <i>et al.</i> ⁴⁸	2015	Gone fishing! Reported sickness absenteeism and the weather	Canada	Weather
Mudaly & Nkosi ⁴⁹	2015	Factors influencing nurse absenteeism in a general hospital in Durban, South Africa.	South Africa	Factors influencing absenteeism
Pfeifer ⁴	2013	Cyclical absenteeism among private sector, public sector and self-employed workers,	Germany	Trends
Tripathi <i>et al.</i> ¹²	2010	Absenteeism among nurses in a tertiary care hospital in India	India	Absenteeism across wards
Isah <i>et al.</i> ¹¹	2008	Self-reported absenteeism among hospital workers in Benin city, Nigeria.	Nigeria	Cultural absence
Nyathi and Jooste ⁵⁰	2008	Working conditions that contribute to absenteeism among nurses in a provincial hospital in the Limpopo Province.	South Africa	Working conditions
Bakker <i>et al.</i> ⁵¹	2006	Crossover of burnout and engagement in work teams.	Netherlands	Burnout
Gunnigle <i>et al.</i> ⁵²	2006	Human Resource Management in Ireland	Ireland	Economic
Walshe <i>et al.</i> ⁵³	2006	Absence of seasonal effect in Irish HBCS data.	Ireland	Economic
Arai <i>et al.</i> ⁵⁴	2005	Incentives and selection in cyclical absenteeism.	Sweden	Economic
Askildsen ⁵⁵	2005	Unemployment, labor force composition and sickness absence: a panel data study	Norway	Economic
Gimeno <i>et al.</i> ⁴⁴	2004	Distribution of sickness absence in the European Union countries.	EU	Psychosocial work factors
Salminen ⁵⁶	2003	Economic depression and sick leaves	Finland	Economic
Franco ⁴²	1999	Ramazzini and workers health	Italy	Occupational Health
Totterdell <i>et al.</i> ⁵⁷	1998	Evidence of mood linkage in work groups.	US	Contagion of moods
Riihimäki ⁴³	1995	Back and limb disorders	United Kingdom	Occupational Health
Yassi <i>et al.</i> ⁵⁸	1991	Effectiveness and cost-benefit of an influenza vaccination program for health care workers.	Canada	Cost benefit influenza vaccination
Nicholson <i>et al.</i> ⁵⁹	1985	The absence culture and the psychological contract- who's in control of absence?	United Kingdom	Culture absence
Leigh ⁶⁰	1985	The effects of unemployment and the business cycle on absenteeism.	US	Economic

a result, lay-off workers with high absenteeism then average absenteeism is lower during high unemployment.⁴ Economic conditions, incentives, work ethics and work group

norms are said to create pressure to attend.⁵² Notably, studies of the impact on absence levels during the recent economic recession seem to indicate a downward trend.¹³

Also of note is that Shoss' study reflects a behavior called "job preservation" aimed at avoiding the loss of one's job.⁴⁶ Employees who are fearful of losing their jobs or promotional opportunities may be concerned about the consequences of being absent, and will curtail voluntary absences as a result or even attend when unwell (presenteeism). Irrespective, taken collectively, these international studies confirm that economic conditions are negatively associated with absenteeism, mainly as a result of job security fears.

SEASONALITY

Seasonality has been documented in the literature as an influence on health status and behaviors.⁵³ Absenteeism rates tend to have seasonal variations, with absenteeism more pronounced during winter and school holidays. There are a number of studies regarding impact of seasonality on absenteeism in the healthcare setting specifically. Ticharwa *et al.*, performed a study in a 300-bed tertiary teaching hospital in Perth, Western Australia, and found that winter was associated with sickness-related absenteeism, as nurses take leave to care for family members.⁶ Such illness affected nursing staff and the people they care for, such as children and elderly parents, meaning nurses would take unplanned leave to recover at home or to look after family members. Similarly, school holidays resulted in planned absenteeism as staff took leave to care for children during these times. That study also observed leave was more pronounced on certain days of the week.⁶ Shi and Skutergard described how summer absenteeism impacts on increased absence, where employees may call in sick to have a sunny day off often during the school-holiday period.⁴⁸ Absenteeism rates on the weekend were lowest, possibly due to the financial incentive associated with working weekends as well as the availability of family members to care for children.⁶¹ In the Irish public and private health sectors specifically, indicators suggest that one-day absences are most frequent, on Mondays and Fridays.⁴⁷ Gianino *et al.*, completed a study in an Italian teaching hospital over three years from 2010-2013 with an average of 5,401 healthcare workers each year.⁵ They found that the mean level of absenteeism increased for all job categories increasing from 5.17 days to 8.57 days during annual flu epidemic periods. Similarly, Yassi *et al.*, completed a study in Canadian hospitals finding that an approximately 35% higher absenteeism rate was observed during the influenza season.⁵⁸ In summary, the international literature conducted in the healthcare setting, with the nursing cohort, suggests that short-term unplanned absence occurs during the winter and summer seasons. Frequent absences in the winter months may be as a result of family responsibilities for children or elderly members. It is also likely that there is more sickness during flu season. During the summer months, increases in short-term absence may be influenced by school holidays and child-minding responsibilities.

LIMITATIONS

It is important to highlight potential limitations to this paper. In general, the theoretical development and the

amount of knowledge available about the causes of absenteeism in a healthcare setting are quite modest.¹⁴⁻¹⁶ In that challenging context, and cognizant of a paucity of relevant literature, this study focused on the specific factors influencing absenteeism in the healthcare setting. The observed scarcity of material is unsurprising, in the context of organizations' reticence to provide access to their data due to potential vulnerabilities, such as commercial sensitivities or critique by oversight bodies in addition to political pressures. Inability to access data of this type is reflected across many countries, albeit that some provide summary information (e.g., Ireland and the United Kingdom).¹⁷ However, even then, varied definitions of absenteeism are utilized that are related to national contexts, which affects the nature of data gathered and analyzed.¹⁸ For example, in the United States, the terms "short-term disability" and "long-term disability" are often used in place of absenteeism. It is possible that the search terms used may not have captured some material pertinent to this review.

CONCLUSION

This review describes a reasonably consistent picture of contextual factors associated with absenteeism in healthcare. While many factors predicted to be associated with absenteeism, such as nightshift working, seasonality or physically demanding roles correlated clearly with increased absenteeism, the literature demonstrated that previous attendance was the best predictor of absenteeism. Unsurprisingly, people were found to be less likely to be absent from work during times of bad economic conditions. Interventions such as monitoring current absence patterns of existing employees may negate the development of cultural norms in the workplace.

DISCLOSURES/CONFLICTS OF INTEREST

The authors have no conflicts of interest to disclose.

AUTHOR CONTRIBUTION

All Authors have reviewed the final manuscript prior to submission. All the authors have contributed significantly to the manuscript, per the ICJME criteria of authorship.

- Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
- Drafting the work or revising it critically for important intellectual content; AND
- Final approval of the version to be published; AND
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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REFERENCES

1. Cascio W, Boudreau J. *Investing in People: Financial Impact of Human Resource Initiatives*. 2nd ed. FT Press; 2015.
2. Organization for Economic Co-operation and Development. *Sickness and Disability Systems: Comparing Outcomes and Policies in Norway with Those in Sweden, The Netherlands and Switzerland*. Economics Department Working Papers No. 1601; 2020. Accessed May 27, 2021. [https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ECO/WKP\(2020\)9&docLanguage=En](https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ECO/WKP(2020)9&docLanguage=En)
3. Chaupain-Guillot S, Guillot O. Sickness benefit rules and work absence: an empirical study based on European data. *Revue d'économie politique*. 2017;127(6):1109-1137. doi:10.3917/redp.276.1109
4. Pfeifer C. Cyclical absenteeism among private sector, public sector and self-employed workers. *Health Econ*. 2013;22(3):366-370. doi:10.1002/hec.2808
5. Gianino MM, Politano G, Scarmozzino A, et al. Estimation of sickness absenteeism among Italian healthcare workers during seasonal influenza epidemics. *PLoS One*. 2017;12(8):e0182510. doi:10.1371/journal.pone.0182510
6. Ticharwa M, Cope V, Murray M. Nurse absenteeism: An analysis of trends and perceptions of nurse unit managers. *J Nurs Manag*. 2018;27(1):109-116. doi:10.1111/jonm.12654
7. Taimela S, Läära E, Malmivaara A, et al. Self-reported health problems and sickness absence in different age groups predominantly engaged in physical work. *Occup Environ Med*. 2007;64(11):739-746. doi:10.1136/oem.2006.027789
8. Mollazadeh M, Saraei M, Mehrdad R, Izadi N. Sickness absenteeism of Healthcare Workers in a Teaching Hospital. *Hosp Pract Res*. 2018;3(1):6-10. doi:10.15171/hpr.2018.02
9. Burmeister EA, Kalisch BJ, Xie B, et al. Determinants of nurse absenteeism and intent to leave: An international study. *J Nurs Manag*. 2019;27(1):143-153. doi:10.1111/jonm.12659
10. Allison MA, Attisha E, Lerner M, et al. The link between school attendance and good health. *Pediatrics*. 2019;143(2):e20183648. doi:10.1542/peds.2018-3648
11. Isah EC, Omorogbe VE, Orji O, Oyovwe L. Self-reported absenteeism among hospital workers in Benin city, Nigeria. *Ghana Med J*. 2008;42:2-7.
12. Tripathi M, Mohan U, Tripathi M, Verma R, Masih L, Pandey HC. Absenteeism among nurses in a tertiary care hospital in India. *The National Medical Journal of India*. 2010;23(3):143-146.
13. Wood S, Ogbonnaya C, Michaelides G. Recessionary actions and absence: A workplace-level study. *Hum Resour Manage*. 2020;59(6):501-520. doi:10.1002/hrm.22008
14. Alexanderson K. Sickness absence: a review of performed studies with focused on levels of exposures and theories utilized. *Scandinavian Journal of Social Medicine*. 1998;26(4):241-249. doi:10.1177/14034948980260040301
15. Tweheyo R. *Understanding absenteeism among frontline healthcare workers and their supervisors in the rural Ugandan setting: a qualitative study*. Thesis. University of Manchester; 2017. https://www.research.manchester.ac.uk/portal/files/184634641/FULL_TEXT.PDF
16. Gohar B, Larivière M, Lightfoot N, Wenghofer E, Larivière C, Nowrouzi-Kia B. Meta-analysis of nursing-related organizational and psychosocial predictors of sickness absence. *Occupational Medicine*. 2020;70(8):593-601. doi:10.1093/occmed/kqaa144
17. Davey MM, Cummings G, Newburn-Cook CV, Lo EA. Predictors of nurse absenteeism in hospitals: a systematic review. *Journal of Nursing Management*. 2009;17(3):312-330. doi:10.1111/j.1365-2834.2008.00958.x
18. Belita A, Mbindyo P, English M. Absenteeism amongst health workers – developing a typology to support empiric work in low-income countries and characterizing reported associations. *Hum Resour Health*. 2013;11(1):34. doi:10.1186/1478-4491-11-34
19. Beil-Hildebrand M. Nurse-absence- the causes and the consequences. *J Nurs Manag*. 1996;4:11-17.
20. Timmins F, Kalischer M. Attitudes to absenteeism among diploma nursing students in Ireland – an exploratory descriptive survey. *Nurse Education Today*. 2002;22(7):578-588. doi:10.1054/nedt.2002.0778

21. Verhaeghe R, Vlerick P, Gemmel P, Van Maele G, De Backer G. Impact of recurrent changes in the work environment on nurses' psychological well-being and sickness absence. *J Adv Nurs*. 2006;56(6):646-656. doi:10.1111/j.1365-2648.2006.04058.x
22. Unruh L, Joseph L, Strickland M. Nurse absenteeism and workload: negative effect on restraint use, incidence reports and mortality. *J Adv Nurs*. 2007;60:673-681.
23. Schreuder JAH, Groothoff JW, Jongsma D, van Zweeden NF, van der Klink JIL, Roelen CAM. Leadership styles of nurse managers and registered sickness absence among their nursing staff. *Health Care Manag Rev*. 2011;36(1):58-66. doi:10.1097/hmr.0b013e3181edd96b
24. Kalisch BJ, Tschannen D, Lee KH. Do staffing levels predict missed nursing care? *Int J Qual Health Care*. 2011;23(3):302-308. doi:10.1093/intqhc/mzr009
25. Duff AJ, Podolsky M, Biron M, Chan CCA. The interactive effect of team and manager absence on employee absence: A Multilevel field study. *J Occup Organ Psychol*. 2015;88(1):61-79. doi:10.1111/joop.12078
26. Vandenheuevel A. Public and private sector absence: does it differ? *Journal of Industrial Relations*. 1994;36(4):530-545. doi:10.1177/002218569403600405
27. Cohen A, Golan R. Predicting absenteeism and turnover intentions by past absenteeism and work attitudes: An empirical examination of female employees in long-term nursing care facilities. *Career Development International*. 2007;12(5):416-432. doi:10.1108/13620430710773745
28. Gaudine A, Gregory C. The accuracy of nurses' estimates of their absenteeism. *J Nurs Manag*. 2010;18(5):599-605. doi:10.1111/j.1365-2384.2010.01107.x
29. Mathis RL, Jackson JH. *Human Resource Management*. 10th ed. South-Western; 2004.
30. Slany C, Schütte S, Chastang JF, Parent-Thirion A, Vermeylen G, Niedhammer I. Psychosocial work factors and long sickness absence in Europe. *Int J Occup Environ Health*. 2014;20(1):16-25. doi:10.1179/2049396713y.0000000048
31. Steel RP. Methodological and operational issues in the construction of absence variables. *Human Resource Management Review*. 2003;13(2):243-251. doi:10.1016/s1053-4822(03)00015-9
32. Schaufeli WB, Bakker AB, Van Rhenen W. How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *J Organiz Behav*. 2009;30(7):893-917. doi:10.1002/job.595
33. AIHR Digital. Absenteeism in the Workplace: A Full Guide. Published 2020. Accessed December 11, 2020. <https://www.digitallhrtech.com/absenteeism/#definition>
34. Chartered Institute of Personnel Development. *Annual Survey Report, Absence Management 2016*. Accessed January 5, 2021. https://www.cipd.co.uk/Images/absence-management_2016_tcm18-16360.pdf
35. Harrison DA, Martocchio JJ. Time for absenteeism: a 20-year review of origins, offshoots, and outcomes. *J Manag*. 1998;24(3):305-350. doi:10.1177/014920639802400303
36. Beemsterboer W, Stewart R, Groothoff J, Nijhuis F. A literature review on sick leave determinants (1984-2004). *Int J Occup Med Environ Health*. 2009;22(2):169-179. doi:10.2478/v10001-009-0013-8
37. Trinkoff AM, Storr CL, Lipscomb JA. Physically demanding work and inadequate sleep, pain medication Use, and absenteeism in registered nurses. *J Occup Environ Med*. 2001;43(4):355-363. doi:10.1097/00043764-200104000-00012
38. Costa FM, Vieira MA, Sena RR. Absenteísmo relacionado à doenças entre membros da equipe de enfermagem de um hospital escola. *Rev Bras Enferm*. 2009;62(1):38-44. doi:10.1590/s0034-71672009000100006
39. Ferreira EV, Amorim MJDM, Lemos RMC, Ferreira NS, Silvo FO, Laureano Filho JR. Absenteísmo dos trabalhadores de enfermagem em um Hospital. Universitário do Estado de Pernambuco. *Rev RENE*. 2011;12(4):742-749.
40. CIHI (Canadian Institute for Health Information). Canada's Health Care Providers: 2005 Chartbook. Published 2005. Accessed May 1, 2007. http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=PG_409_E&cw_topic=409&cw_rel=AR_35_E
41. Josephson M, Lindberg P, Voss M, Alfredsson L, Vingard E. The same factors influence job turnover and long spells of sick leave—a 3-year follow-up of Swedish nurses. *Eur J Public Health*. 2008;18(4):380-385. doi:10.1093/eurpub/ckn009
42. Franco G. Ramazzini and workers' health. *Lancet*. 1999;354(9181):858-861. doi:10.1016/s0140-6736(99)80042-7

43. Riihimäki H. Back and limb disorders. In: McDonald JC, ed. *Epidemiology of Work Related Diseases*. BMJ Publishing Group; 1995:207-238.
44. Gimeno D, Benavides F, Benach J, Amich B. Distribution of sickness absence in the European Union countries. *Occup Environ Med*. 2004;61(10):867-869. doi:10.1136/oem.2003.010074
45. Barnett MD, Martin KJ, Garza CJ. Satisfaction with work-family balance mediates the relationship between workplace social support and depression among hospice nurses. *Journal of Nursing Scholarships*. 2018;0(0):1-8.
46. Shoss MK. Job insecurity: An integrative review and agenda for future research. *Journal of Management*. 2017;43(6):1911-1939. doi:10.1177/0149206317691574
47. McMahon G. How to manage.. absenteeism. Legal Island. Published 2017. Accessed October 12, 2020. <https://www.legal-island.ie/articles/ire/features/how-to/2017/dec/how-to-manage-absenteeism/>
48. Shi J, Skuterud M. Gone fishing! Reported sickness absenteeism and the weather. *Econ Inq*. 2015;53(1):388-405. doi:10.1111/ecin.12109
49. Mudaly P, Nkosi ZZ. Factors influencing nurse absenteeism in a general hospital in Durban, South Africa. *J Nurs Manag*. 2015;23(5):623-631. doi:10.1111/jonm.12189
50. Nyathi M, Jooste K. Working conditions that contribute to absenteeism among nurses in a provincial hospital in the Limpopo Province. *Curationis*. 2008;31(1):28-37. doi:10.4102/curationis.v31i1.903
51. Bakker AB, Emmerik HV, Euwema MC. Crossover of burnout and engagement in work teams. *Work and Occupations*. 2006;33(4):464-489. doi:10.1177/0730888406291310
52. Gunnigle P, Heraty N, Morley M. *Human Resource Management in Ireland*. 3rd ed. Gill & Macmillan Dublin; 2006.
53. Walshe K, Nic Gabhainn S. Absence of seasonal effect in Irish HBSC data. *National Institute of Health Sciences Research Bulletin*. Published online 2006. Accessed April 12, 2021. https://www.drugsandalcohol.ie/18500/1/Research_Bulletin_June_2006.pdf
54. Arai M, Skogman Thoursie P. Incentives and selection in cyclical absenteeism. *Labour Economics*. 2005;12(2):269-280. doi:10.1016/j.labeco.2003.11.009
55. Askildsen JE, Bratberg E, Nilsen ØA. Unemployment, labor force composition and sickness absence: a panel data study. *Health Econ*. 2005;14(11):1087-1101. doi:10.1002/hec.994
56. Salminen JK. Talouslama ja saairauslomat [Economic depression and sick leaves, in Finnish with English abstract]. *Suomen Lääkärilehti*. 2003;58:21-24.
57. Totterdell P, Kellett S, Teuchmann K, Briner RB. Evidence of mood linkage in work groups. *Journal of Personality and Social Psychology*. 1998;74(6):1504-1515. doi:10.1037/0022-3514.74.6.1504
58. Yassi A, Kettner J, Hammond G, Cheang M, McGill M. Effectiveness and cost-benefit of an influenza vaccination program for health care workers. *Can J Infect Dis J*. 1991;2(3):101-108. doi:10.1155/1991/376502
59. Nicholson N, Johns G. The absence culture and the psychological contract- who's in control of absence? *Academy of Management Review*. 1985;10(3):397-407.
60. Leigh JP. The effects of unemployment and the business cycle on absenteeism. *Journal of Economics and Business*. 1985;37(2):159-170. doi:10.1016/0148-6195(85)90014-1
61. Brborović H, Daka Q, Dakaj K, Brborović O. Antecedents and associations of sickness Presenteeism and sickness absenteeism in nurses: A systematic review. *Int J Nurs Pract*. 2017;23(6):e12598. doi:10.1111/ijn.12598