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UNIVERSITY OF RIJEKA
FACULTY OF TOURISM AND HOSPITALITY MANAGEMENT

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**THE IMPACT OF EMPLOYEES' JOB ATTITUDES
ON ABSENTEEISM IN THE HOTEL INDUSTRY**

DOCTORAL THESIS

Opatija, 2024



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Mentor: *Helga Maškarin Ribarić, PhD, Full Professor Tenure*

Co-mentor: *Kristina Črnjar, PhD, Full Professor*

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Vedrana Čikeš

**UTJECAJ STAVOVA ZAPOSLENIKA PREMA RADU
NA APSENTIZAM U HOTELIJERSTVU**

DOKTORSKA DISERTACIJA

Opatija, 2024.



Mentor: Helga Maškarin Ribarić, PhD, Full Professor Tenure

Co-mentor: Kristina Črnjar, PhD, Full Professor

The doctoral thesis was defended on 16 October 2024 as part of the doctoral study programme "Management of Sustainable Development" at the Faculty of Tourism and Hospitality Management, University of Rijeka before a Committee consisting of:

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Finally, I dedicate this thesis to my mom, dad, and sister – thank you.

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ABSTRACT

Tourism and hospitality play a vital role in the global economy due to their significant economic contribution. In Croatia, tourism accounts for 19.6% of the GDP and directly employs about 6% of the total workforce, highlighting its substantial impact on the national economy. The hotel industry, a key component of tourism, is labor-intensive, with the human factor playing a crucial role in its success. However, labor costs are among the highest expenses for hoteliers, representing a significant area for potential savings and impacting business efficiency. Consequently, the field of human resources in the tourism and hospitality industry is of great interest to both theorists and practitioners.

Absenteeism, defined as an employee's intentional or habitual absence from work, has numerous negative implications for individuals, enterprises, and society. Research has consistently shown that job attitudes play a significant role in influencing absenteeism. Studies have found that organizational commitment and job involvement are associated with absenteeism. However, while these attitudes and absenteeism are extensively researched internationally, a limited number of studies still address these topics within Croatian scientific and professional practice. Theoretical and empirical knowledge regarding the influence of managing employees' job attitudes on absenteeism is insufficiently applied in practice, neglecting a significant factor for managing organizational outcomes and success. This fact opened up a space to thoroughly investigate this issue and propose appropriate solutions. The subject of this thesis is the complex individual relationship between the two types of job attitudes – organizational commitment and job involvement – and absenteeism, as well as the interrelationship between these two attitudes. This doctoral thesis aims to enhance the understanding of absenteeism within the hotel industry, identify its causes, and explore ways to reduce absenteeism by influencing employees' job attitudes.

The research in this thesis was conducted through three research papers. The first paper involved a systematic literature review to summarize the determinants and outcomes of absenteeism. The second study provided a detailed overview of social security models in the European Union, focusing on sickness benefit schemes, and analyzed absenteeism data in the EU and Croatia, with particular attention to the hospitality industry. Using the Human Capital Approach, this study also included an analysis of absenteeism costs, specifically productivity losses due to sickness absence. The third study examined the relationship between job attitudes (organizational commitment and job involvement) and absenteeism using logistic regression and empirical data collected from a sample of 734 hotel employees in Croatia.

The research revealed that absenteeism is influenced by various personal, demographic, attitudinal, health-related, organizational, and job-related determinants. The analysis of social security models in the EU regarding sickness benefits demonstrated significant variations in waiting periods, employer payment obligations, benefit amounts, and maximum duration, highlighting diverse national approaches to managing sickness absence. The analysis of absenteeism costs in Croatia indicated a significant increase in productivity losses due to sickness absence from 2018 to 2023. A primary research on a sample of employees from Croatian hotel companies thoroughly examined the relationship between job attitudes and absenteeism, showing that affective and normative commitment is negatively related to absenteeism, while no statistically significant relationships were found between continuance commitment or job involvement and absenteeism. Additionally, all dimensions of organizational commitment positively affect job involvement.

This thesis provides important insights into the causes and consequences of absenteeism in the hotel industry. It highlights the importance of managing job attitudes to reduce absenteeism and improve organizational outcomes. Moreover, the research emphasizes the need for creation of standardized methods for measuring and monitoring absenteeism data to improve comparison across countries and to develop effective policies for its decrease.

Future studies should examine absenteeism in other sectors to understand its varying costs and aspects. Also, future research might use company-registered absenteeism data to avoid potential biases. In addition, investigating a broader range of job attitudes can help identify which attitudes most influence absenteeism. Finally, future research should focus on developing and testing interventions aimed at reducing absenteeism. Programs such as wellness initiatives, flexible work arrangements, employee assistance programs, and targeted support mechanisms for high-risk groups should be explored further.

Keywords: absenteeism, sick leave, organizational commitment, job involvement, hotel industry, productivity loss, Human Capital Approach (HCA), logistic regression

JEL classification codes: I18, J22, J24, J32

PROŠIRENI SAŽETAK

Turizam i ugostiteljstvo igraju ključnu ulogu u globalnoj ekonomiji zbog svojih značajnih ekonomskih doprinosa. U Hrvatskoj, turizam čini 19,6% BDP-a i izravno zapošljava oko 6% ukupne radne snage, što naglašava njegov značajan utjecaj na nacionalnu ekonomiju. Hotelska industrija, ključna komponenta turizma, radno je intenzivna, a ljudski faktor igra ključnu ulogu u njenom uspjehu. Međutim, troškovi rada među najvećim su troškovima za hotelijere, predstavljajući značajno područje za potencijalne uštede i utječući na poslovnu učinkovitost. Posljedično, područje ljudskih resursa u turizmu i ugostiteljstvu od velikog je interesa za teoretičare i praktičare.

Apsentizam, definiran kao izostajanje zaposlenika s posla s namjerom ili povodom, ima brojne negativne implikacije za pojedince, poduzeća i društvo. Istraživanja su pokazala da stavovi prema radu igraju značajnu ulogu u utjecaju na apsentizam. Studije su pokazale da su odanost organizaciji (*organizational commitment*) i zaokupljenost poslom (*job involvement*) povezani s apsentizmom. Međutim, iako se ovi stavovi i apsentizam opsežno istražuju na međunarodnoj razini, još uvijek postoji ograničen broj studija koje se bave ovim temama unutar hrvatske znanstvene i stručne prakse. Teorijsko i empirijsko znanje o utjecaju upravljanja stavovima zaposlenika na apsentizam nedovoljno je primijenjeno u praksi, zanemarujući značajan faktor za upravljanje organizacijskim ishodima i uspjehom. Ova činjenica također je otvorila prostor za temeljito istraživanje ovog pitanja i predlaganje odgovarajućih rješenja. Predmet ove disertacije je kompleksan pojedinačni odnos između dvije vrste stavova prema radu – odanosti organizaciji i zaokupljenosti poslom – i apsentizma, kao i međusobni odnos između tih dvaju stavova. Svrha ove doktorske disertacije je unaprijediti shvaćanje o apsentizmu u hotelskoj industriji kao i njegovim uzrocima, te mogućnostima manipulacije razmjerima apsentizma kroz utjecaje na stavove zaposlenika prema radu.

Istraživanje u ovoj disertaciji provedeno je kroz tri znanstvena rada. Prva studija uključivala je sustavni pregled literature kako bi se saželi uzroci i posljedice apsentizma. Druga studija pružila je detaljan pregled modela socijalnih osiguranja u Europskoj uniji, s fokusom na naknade za bolovanje, i analizirala podatke o apsentizmu u EU i Hrvatskoj, s posebnim naglaskom na ugostiteljstvo. Ova studija također je uključivala analizu troškova apsentizma, konkretno gubitaka produktivnosti zbog bolovanja, korištenjem Human Capital Approach metode. Treća studija ispitala je odnos između stavova prema radu (odanost organizaciji i zaokupljenost poslom) i apsentizma korištenjem logističke regresije i empirijskih podataka prikupljenih na uzorku od 734 hotelska zaposlenika u Hrvatskoj.

Istraživanje je pokazalo da na izostajanje s posla utječu različiti osobni i demografski čimbenici, stavovi te zdravstveni, organizacijski i radni čimbenici. Analiza modela socijalnog osiguranja u EU u vezi s naknadama za bolovanje otkrila je značajne varijacije u razdobljima čekanja, obvezama poslodavaca za isplatu, iznosima naknada i maksimalnom trajanju, ističući različite nacionalne pristupe upravljanju bolovanjima. Nadalje, analiza troškova apsentizma u Republici Hrvatskoj pokazala je značajan porast gubitaka produktivnosti zbog bolovanja od 2018. do 2023. godine. Primarnim istraživanjem na uzorku zaposlenika hrvatskih hoteskih poduzeća temeljito je istražen odnos između stavova prema radu i apsentizma, pokazujući da su afektivna i normativna odanost negativno povezane s apsentizmom, dok između instrumentalne odanosti i zaokupljenosti poslom i apsentizma nije pronađena značajna statistička veza. Dodatno, sve dimenzije odanosti organizaciji pozitivno utječu na zaokupljenost poslom.

Ova disertacija pruža važne spoznaje o uzrocima i posljedicama apsentizma u hotelskoj industriji. Uz to, naglašava važnost upravljanja stavovima prema radu kako bi se smanjio apsentizam i poboljšali organizacijski ishodi. Osim toga, istraživanje naglašava potrebu razvoja standardiziranih metoda mjerenja i praćenja podataka o apsentizmu kako bi se poboljšala usporedba među zemljama i razvile učinkovite politike za njegovo smanjenje.

Buduće bi studije trebale ispitati apsentizam u drugim sektorima kako bi se razumjeli različiti troškovi i aspekti apsentizma. Također, u budućim bi se istraživanjima mogli koristiti službeni podaci o apsentizmu u poduzećima kako bi se izbjegle potencijalne pristranosti. Osim toga, istraživanje šireg raspona stavova prema radu može pomoći u prepoznavanju onih stavova koji najviše utječu na izostanak s posla. Konačno, buduća bi se istraživanja trebala usredotočiti na razvoj i testiranje intervencija usmjerenih na smanjenje apsentizma. Programi poput wellness inicijativa, fleksibilnih radnih aranžmana, programa pomoći zaposlenicima i ciljanih mehanizama podrške za visokorizične skupine trebali bi se dodatno istražiti.

Ova doktorska disertacija sastoji se od uvoda, pregleda literature, opisa metodologije istraživanja, rezultata i zaključka. U prvom dijelu, uvodu, raspravlja se o samom problemu istraživanja. Navodi se značaj turizma i ugostiteljstva u globalnoj i hrvatskoj ekonomiji, naglašavajući njihov doprinos BDP-u i zapošljavanju. Uvodi se pojam apsentizma, kao namjernog izostanka zaposlenika s posla, koji radi svog negativnog utjecaja na pojedince, poduzeća i društvo, igra veliku ulogu u području ljudskih resursa. U uvodu se također iznosi predmet istraživanja, fokusirajući se na apsentizam u hotelskoj industriji. U nastavku se definiraju glavna i pomoćne hipoteze disertacije. U posljednjem dijelu uvoda objašnjavaju se svrha i ciljevi disertacije, podijeljeni na konceptualne, empirijske i aplikativne, s ciljem poboljšanja razumijevanja apsentizma, njihovih uzroka i mogućih rješenja unutar hotelske industrije.

Drugi dio disertacije, pregled literature, pruža sveobuhvatan pregled postojećih istraživanja o apsentizmu i stavovima prema radu. U ovom se dijelu kategoriziraju vrste i metode mjerenja apsentizma te se razlažu troškovi povezani s apsentizmom. Naglašavaju se bolovanja, kao najčešći pojavni oblik apsentizma. U nastavku se definiraju stavovi prema radu i daje se prikaz kategorija u koje se stavovi najčešće svrstavaju. Posebno se pojašnjavaju odanost organizaciji i zaokupljenost poslom, kao i njihov utjecaj na apsentizam. Na kraju ovog poglavlja raspravlja se o interakciji između ovih stavova i njihovim kombiniranim učincima na apsentizam, oslanjajući se na različite studije kako bi se ilustrirala složenost ovih odnosa.

Treći dio, metodologija, detaljno opisuje istraživački dizajn i metode korištene u tri znanstvena rada. Na samom početku dan je tablični pregled metodologije svakog rada, uključujući podatke o geografskom/znanstvenom području i jedinici obuhvata istraživanja, vremenskom periodu istraživanja, korištenim metodama te veličini uzorka. Nadalje se opisuje način na koji je primijenjen sustavni pregled literature u prvom radu, kako bi se identificirali, sintetizirali i analizirali uzroci i posljedice apsentizma. U nastavku se objašnjava pristup metodologiji u drugom znanstvenom radu, u kojem su testirane hipoteze H1, H2 i H3. Ovaj je rad obuhvaćao analizu modela socijalnog osiguranja u EU te Human Capital Approach (HCA) za procjenu troškova apsentizma u Hrvatskoj, s posebnim fokusom na troškove u ugostiteljstvu. U ovom je dijelu pojašnjeno odstupanje od fokusa istraživanja sa hotelijerstva na ugostiteljstvo, radi izostanka nacionalnih statističkih podataka, odnosno nemogućnosti praćenja podataka o apsentizmu na nižoj razini od djelatnosti, sukladno Nacionalnoj klasifikaciji djelatnosti (NKD 2007). U nastavku metodološkog dijela disertacije, objašnjava se postupak provođenja glavnog empirijskog istraživanja koje je provedeno među zaposlenicima hotela u Hrvatskoj, pritom pojašnjavajući uzorkovanje, prikupljanje podataka i procese analize podataka. U svrhu prikupljanja podataka korišten je anketni upitnik. U ovom su, trećem znanstvenom radu, testirane hipoteze H, H4, H4a, H4b, H4c, H5 i H6 uz pomoć logističke regresije. Za obradu podataka korišten je softverski paket SPSS, verzija 23.

U četvrtom dijelu, rezultati, sintetizirana su ključna saznanja doktorske disertacije osvrćući se na rezultate dobivene u znanstvenim radovima. Sustavni pregled literature u prvom radu otkrio je najčešće istraživane uzroke i posljedice apsentizma, naglašavajući odanost organizaciji i zaokupljenost poslom kao značajne faktore. Analiza modela socijalnog osiguranja u drugom znanstvenom radu pokazala je da među zemljama EU postoje različiti pristupi upravljanju bolovanja, koji se između ostalog manifestiraju i kroz varijacije u naknadama koje se isplaćuju za vrijeme bolovanja. Značajne razlike otkrivene su i u podacima o apsentizmu među državama članicama. Nadalje, HCA metoda pokazala je da su troškovi bolovanja u

Republici Hrvatskoj izrazito visoki – u 2023. godini gubitak produktivnosti uzrokovan bolovanjima iznosio je 704,9 milijuna eura, što čini 1,11% nacionalne bruto dodane vrijednosti. U odnosu na cijelu ekonomiju, hrvatsko ugostiteljstvo pokazuje nešto bolju sliku. U posljednjem radu, empirijsko istraživanje među zaposlenicima hotela u Hrvatskoj ukazuje da su afektivna i normativna odanost negativno povezane s apsentizmom, dok između instrumentalne odanosti i zaokupljenosti poslom i apsentizma ne postoji značajna povezanost. Istraživanje je također pokazalo da viša odanost organizaciji dovodi do veće zaokupljenosti poslom.

U završnom se dijelu ove doktorske disertacije, zaključku, raspravlja o implikacijama istraživačkih rezultata dobivenih u tri znanstvena rada. Veze između radova, istraživačkih ciljeva i postavljenih hipoteza slikovito su prikazane i potom pojašnjene u tekstu. U nastavku su tablično prikazani i u tekstu objašnjeni i rezultati testiranja hipoteza. Kroz metodološka razmatranja opisana su ograničenja znanstvenih radova. U nastavku je objašnjena povezanost dobivenih rezultata istraživanja s prethodnim istraživanjima. U zaključku se također ističu teorijski, metodološki i aplikativni doprinosi disertacije. Na kraju se predlažu smjernice za buduća istraživanja, uključujući ispitivanje apsentizma u drugim sektorima, korištenje registriranih podataka o apsentizmu u poduzećima i istraživanje šireg spektra stavova prema radu.

Ključne riječi: apsentizam, bolovanje, odanost organizaciji, zaokupljenost poslom, hotelska industrija, gubitak produktivnosti, Human Capital Approach (HCA), logistička regresija

JEL klasifikacijski kodovi: I18, J22, J24, J32

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1. INTRODUCTION

Tourism and hospitality play an important role in the global economy due to its significant economic contributions. These sectors stimulate economic growth, create jobs, and foster cultural exchange. According to the World Travel & Tourism Council (WTTC), in 2023, the tourism sector contributed approximately 10.4% to the global GDP and supported around 334 million jobs, which is about 1 in 10 jobs in the global workforce. In a country like Croatia, where tourism accounts for 19.6% of the GDP (Croatian National Bank, 2024) and directly employs about 6% of the total workforce (Croatian Bureau of Statistics, 2024), the significant impact of tourism on the overall economy is clearly evident.

The hotel industry, a vital component of tourism, is labor-intensive, and the human factor plays a key role in its success. Employee's knowledge, skills, experience, personality, attitudes, and behaviors are essential for creating specific organizational advantages. At the same time, labor costs are among the highest expenses for hoteliers and represent a significant area for potential savings, rationalization, and impact on business efficiency. Consequently, the field of human resources in the hospitality industry is of great interest to both theorists and practitioners.

One of the frequently researched issues in the field of human resources is absenteeism. Absenteeism is an employee's intentional or habitual absence from work (Cucchiella et al., 2014). This behavior is often being researched in hospitals and among nurses (Labrague et al., 2020; Brborovic et al., 2016), in manufacturing industry (Nowak et al., 2023; Pfeifer, 2010) and public sector (Mastekaasa, 2020; Wegge, 2007), while studies in hotel industry are quite scarce (Mukwevho et al., 2020; Pizam & Thornburg, 2000). This fact opened up a space for further research on absenteeism in this sector.

1.1 THE PROBLEM AND THE SUBJECT OF THE THESIS

Absenteeism has numerous negative implications for individuals, enterprises, society, and the country in general. This unplanned behavior increases the workload of present employees (Goodman & Atkin, 1984), impacts the quality of working life (Monkevičius, 2014), lowers their morale (McHugh, 2002), raises costs (Kocakulah et. al., 2016; Navarro & Bass, 2006; Allen, 1983), lowers process quality and output (Morrow et. al., 1999) and decreases the organizational productivity (Zhang et. al., 2017; Johns, 2011).

Absenteeism and the factors associated with this phenomenon can be analysed in various ways. Although the causes of absenteeism in different settings can be attributed to a combination of factors, including individual (Kolz, 1999; Störmer & Fahr, 2013), job-related (Barmby et al., 2001; Scoppa, 2010), and organizational support factors (Adebayo & Nwabuoku, 2008), research has consistently shown that job attitudes play a significant role in influencing absenteeism (Punnett et al., 2007; Wegge, 2007). The literature on absenteeism suggests that employees might choose to withdraw from an aversive work situation as this makes them dissatisfied. Therefore, it is no surprise that job satisfaction is one of the most researched attitudes (Boon et. al., 2014; Yang, 2010; Ybema et. al., 2010). However, some studies also found organizational commitment and job involvement to be negatively associated with absenteeism (Schalk, 2011; Punnett et. al., 2007). Employees with high levels of organizational commitment or job involvement have lower levels of absenteeism.

Although these two attitudes and absenteeism are extensively researched both theoretically and empirically in international literature, there is still a limited number of studies addressing these topics within Croatian scientific and professional practice. Theoretical and empirical knowledge regarding the influence of managing employees' job attitudes on absenteeism is insufficiently applied in practice, neglecting a significant and potent factor for managing organizational outcomes and success. Therefore, there is a compelling need to thoroughly investigate this issue and propose appropriate solutions.

The subject of this thesis is the complex individual relationship between the two types of job attitudes – organizational commitment and job involvement – and absenteeism, but also the interrelationship between these two attitudes. The main research was conducted in hotel companies in Croatia – a country where tourism and the hotel industry have an above-average impact on the economy as a whole.

1.2 THESIS' HYPOTHESES

Taking into account the previously defined subject of the thesis, the following main hypothesis is proposed:

H: There is a significant relationship between job attitudes and absenteeism.

Based on the main hypothesis, the following auxiliary hypotheses are set:

H1: Absenteeism is a complex phenomenon that affects business operations.

Absenteeism creates challenges for the organization's management, especially when reorganizing work. The organization must make additional efforts to fully, or at least partially, compensate for the work of the absent employee. Also, absenteeism increases the workload on employees who are present (Goodman & Atkin, 1984), raises overall operational costs (Kocakulah et al., 2016; Navarro & Bass, 2006; Allen, 1983), and ultimately decreases organizational productivity (Zhang et al., 2017; Johns, 2011).

H2: Absenteeism in the hospitality industry is associated with increased operating costs.

The absence of employees from work causes direct and indirect costs to the organization, which are, among others, related to sickness benefits, overtime costs, lost work, reduced customer satisfaction and reduced labor productivity, which consequently leads to a decrease in the profitability of the company itself (Buschak, 1996). These issues are especially pronounced in the tourism and hospitality industry, due to its labor intensity.

H3: There are significant differences between social security models in EU countries.

Depending on the country, social security systems might include pension insurance, health and maternity insurance, unemployment and health insurance (Jablonskienė, 2013), as well as insurance for cases such as the death of a breadwinner or the need for parental support (van den Heever, 2021). The costs of sick leave (sickness benefits) are divided between employers and the state, depending on each country's social security model. In the EU, they vary significantly across member states due to different national policies.

H4: Organizational commitment is negatively related to absenteeism.

H4a: Affective commitment is negatively related to absenteeism.

H4b: Continuance commitment is negatively related to absenteeism.

H4c: Normative commitment is negatively related to absenteeism.

Each of the dimensions of organizational commitment can cause independent effects on absenteeism (Tayyeb & Riaz, 2004). Hackett et al. (1992) found a negative relationship between absenteeism and normative commitment, while Allen and Meyer (1996) confirmed the same for affective commitment. In general, as organizational commitment decreases, employee absenteeism increases (Bennett, 2002; Lok & Crawford, 2001).

H5: Job involvement is negatively related to absenteeism.

This relationship was confirmed by Cheloha and Far (1980) and Brown (1996). The higher the job involvement, the lower the absenteeism rate in the organization.

H6: Organizational commitment and job involvement are positively related.

Studies have shown that a positive relationship exists between organizational commitment and job involvement (Mathieu & Zajac, 1990; Saxena & Saxena, 2015). The higher the organizational commitment is, the higher is employees' job involvement.

1.3 PURPOSE AND OBJECTIVES OF THE THESIS

Since absenteeism is a common challenge for all organizations, researching this issue is particularly important for the hotel industry. Therefore, the purpose of this thesis is to enhance the understanding of absenteeism within the hotel industry, identify its causes, and explore ways to reduce absenteeism by influencing employees' job attitudes.

In accordance with the subject and the purpose of the thesis, the main objective of the research is to explore the relation between employees' job attitudes (organizational commitment and job involvement) and absenteeism in the example of the hotel industry.

The research objectives of the thesis relate to the conceptual, empirical, and applicative parts of the research. The objectives of the conceptual part are:

- to explore and systematize theoretical knowledge about absenteeism, its causes and consequences
- to explore and systematize theoretical knowledge about organizational commitment and job involvement.

Further, the research objectives of the empirical part of the thesis are:

- to analyze the social security models in the EU and Croatia, with a special reference to the costs of absenteeism, i.e. sick leaves
- to analyze the available data on absenteeism in the EU and Croatia, with a special reference to the hospitality industry

- to explore the relation between the dimensions of organizational commitment and absenteeism
- to explore the relation between job involvement and absenteeism
- to explore the relation between the dimensions of organizational commitment and job involvement
- to compare the obtained results with previous researches.

Finally, the research objectives of the applicative part of this research are:

- to emphasize the practical applicability of the research results and conclusions for hotel companies
- to propose specific guidelines for mitigating the negative economic impact of absenteeism.

2. LITERATURE REVIEW

According to the literature, there are several types of absenteeism. The most common type is sick leave (Duff et al., 2015; Løkke et al., 2006; Pizam & Thornburg 2000), while vacation, maternity leave, military duty, and education absence, are some of the forms of absenteeism, too. Absenteeism can be measured in two ways – as time lost and as absence frequency. Time-lost measures express absenteeism as a sum of units of time (e.g., hours or days) away from work (Steel 2003), while absence frequency is the number of absences in a specific period regardless of duration (Chadwick-Jones et al., 1971).

One of the most prominent areas of study in organizational behavior is job attitudes, or how people feel about what they do when they work (Salancik & Pfeffer, 1977). In general, they can be grouped into at least three categories: task-based attitudes, people-based attitudes, and organization-based attitudes (Ng & Feldman, 2010). According to Ng & Feldman (2010), task-based attitudes are summary evaluations of the job tasks and role duties, which employees perform; people-based attitudes are summary evaluations of other individuals and groups in their social environment at work, such as supervisors, coworkers, and clients, while organization-based attitudes are summary evaluations of the employer or the employment relationship itself. Each of these three categories of job attitudes contains numerous specific attitudes. Some of the task-based attitudes are overall job satisfaction, satisfaction with pay, and job involvement; the group of people-based attitudes includes satisfaction with coworkers or supervisors, interpersonal trust, etc.; while the organizational-based attitudes encompass affective, normative and

continuance commitment, loyalty, perceived organizational support, and many others (Ng & Feldman, 2010). In the literature, job attitudes are often linked to work performance (Jernerić & Kutleša, 2012; Brief & Weiss, 2002; Judge et. al., 2001; Meyer & Allen, 1997; Mowday et. al., 1982) and work behaviors, such as absenteeism and turnover intentions. There is a general belief among social psychology researchers that changes in attitudes make a behavior change (Kim & Hunter, 1993). It is not surprising then that the positive job attitudes, such as organizational commitment and job satisfaction, are accompanied by better work outcomes (Harrison et. al., 2006).

When it comes to organizational commitment, this attitude has been traditionally conceptualized and measured in various ways. Authors agree that organizational commitment is a multidimensional construct and the antecedents, correlates, and consequences of commitment vary across dimensions (Meyer et al., 2002). Despite this, the classification of commitment in three distinguishable components – affective, continuance, and normative, developed in the 1990s by Allen and Meyer (1990), continues to serve as a foundation for many studies. According to this classification, the affective component of organizational commitment refers to employees' emotional attachment to, identification with, and involvement in, the organization. The continuance component addresses commitment based on the costs that employees associate with leaving the organization, while the normative component refers to employees' feelings of obligation to remain with the organization (Allen and Meyer, 1990). Organizational commitment however can be a result of a combination of two or three mentioned aspects of commitment, i.e., it does not necessarily have to be based on only one component. According to Maslić Seršić (2000), one individual may simultaneously feel a strong emotional connection (affective component) but also an obligation to stay in the organization (normative component), while another employee may be satisfied with his job (affective component) but also aware that leaving the organization would be complicated and incur some costs (instrumental component). The intensity of each component, therefore, depends on the individual, his personal values and needs.

Numerous studies examine the relationship between individual components of organizational commitment and absenteeism. According to Allen and Meyer (1996) and Somers (1995), affective commitment has the strongest influence on absenteeism. It positively affects employee performance and relevant organizational outcomes, such as absenteeism (Meyer et al., 2002; Mathieu and Zajac, 1990). Hackett et al. (1992) found that a statistically significant relationship with absenteeism exists only when it comes to normative commitment. Allen and Meyer (1990) noted that researching organizational commitment and work behaviors, such as job performance and absenteeism, is complicated by the fact

that each of the three components of commitment can cause independent effects on certain behaviors. Lok and Crawford (2001) and Bennett (2002) confirmed that as employees' commitment to the organization decreases, employee absenteeism increases. Additionally, organizational commitment, in interaction with other variables, shows a negative impact on absenteeism. Thus, employees with a low level of job satisfaction and low commitment to the organization are more often absent than those with a high level of job satisfaction and commitment (Sagie, 1998).

The main stream of research about the job involvement has been derived from the work of Lodahl and Kejner (1965) and Kanungo (1982), who define job involvement as a psychological identification with their job. It encompasses the extent to which an individual is personally engaged to their job tasks and responsibilities. It is important to differentiate between work involvement and job involvement. Work involvement, influenced by the process of early socialization, pertains to an individual's values regarding work and its benefits. In contrast, job involvement is specifically tied to an individual's current employment situation and depends on the degree to which it meets their current needs (Brown, 1996).

Cheloha and Farr (1980) found a significant negative relationship between job involvement and absenteeism by examining employees of public administration bodies. However, an extensive meta-analysis by Brown (1996) found a negative but weak relationship between these variables. Job involvement is also discussed in the literature in interaction with other variables, such as job satisfaction, which together represent important causes of absenteeism (Wegge et al., 2007). Wegge et al. (2007) concluded that a high level of job involvement results in a low level of absenteeism only when job satisfaction is low. If job satisfaction is high, there is no significant relationship between job involvement and absenteeism.

There are also studies in the literature that measure the mutual influence between organizational commitment and job involvement. Freund and Carmeli (2003), Meyer et al. (2002), and Kuruüzüm, Çetin, and Irmak (2009) confirmed that job involvement affects two dimensions of organizational commitment (affective and normative), but has no effect on the instrumental dimension. Ho et al. (2012) conducted a study among medical staff that showed high job involvement leads to increased organizational commitment.

It can be concluded that both organizational commitment and job involvement are considered to be important causes of absenteeism. Therefore, the research conducted in this doctoral thesis will be based on this knowledge and will be applied to the insufficiently researched hotel industry.

3. METHODOLOGY

In this doctoral thesis, several methodological approaches have been used, in accordance with the proposed hypotheses and research objectives. Theoretical parts of the research papers were supported with the methods of analysis and synthesis, induction and deduction, classification, description, and comparison.

All three research papers applied different scientific methods that are summarized in the Table 1 and described in details below.

Table 1 Review of the methodology used in the attached scientific papers

Number of the paper	Geographical/research area and research unit	Covered time period	Method	Type of research	Sample size
1	Scopus database; peer-reviewed research articles	1969-26 March 2018	Systematic literature review	Secondary	n = 100
2	Croatia; sickness absences	2018-2023	Human Capital Approach (HCA)	Secondary	n/a
3	Croatia; hotel employees – NKD 55.10	April-May 2019	Exploratory factor analysis Mann-Whitney U test Chi-square test of independence Logistic regression analysis	Primary	n = 734

Source: Own compilation (2024)

In the first research paper, the systematic literature review was used to identify, summarize, and analyze the antecedents and consequences of absenteeism, as well as their relation to absenteeism itself, in the largest database of peer-reviewed literature – Scopus. A complex keyword search of titles, abstracts and keywords was performed in order to identify studies that focus on the determinants and outcomes of absence behavior. The initial search of the database was undertaken using basic keywords and basic Boolean operators for synonyms: “antecedents” (OR causes, OR determinants, OR predictors), “consequences” (OR outcomes), and “absenteeism” (OR absence behavior). Second, the search was confined to document type: article; language: English; subject area: “Business, Management and Accounting” and “Economics, Econometrics and Finance.” When these criteria were applied, the initial sample resulted in 388 papers in the period from 1969 to 2018 (26 March). After the analysis of abstracts and full texts, this sample was narrowed to 124 of the most relevant articles. Articles that referred to school absenteeism, theoretical articles, reviews, and meta-analyses were excluded from further analysis. The last step was the selection of the best-quality articles. Since paper citations serve as a de facto vote on a given article’s contribution towards knowledge accumulation and development (Saha et al. 2003), the first 100 articles were selected for the next step – content analysis.

The second research paper tested hypotheses H1, H2 and H3. In this paper, a detailed overview of social security models in the European Union, specifically focusing on sickness benefit schemes, was provided using data from the European Commission (Mutual Information System on Social Protection, 2024). Following this, a comprehensive analysis of absenteeism among EU member states was conducted, with particular attention given to sick leaves. A more thorough analysis was carried out for Croatia and the hospitality industry. Due to data unavailability, the focus of this research – hospitality industry (activity I – Accommodation and food service activities; National Classification of Activities (NKD) 2007) – is broader than the focus of the thesis – hotel industry (activity I – Accommodation and food service activities, division 55 Accommodation, group 55.1 Hotels and similar accommodation; NKD 2007). In Croatian official statistics, absenteeism data can only be tracked at activity levels (NKD 2007) and cannot be tracked separately for divisions or groups. Since the hotel industry in Croatia is part of the hospitality industry, this deviation is justified.

Further, the second research paper used the Human Capital Approach (HCA) to estimate the costs of sickness absence in Croatia for the years 2018-2023 through the loss of productivity. This was calculated by multiplying the time lost due to sickness absence by the market value of work (gross salary). The

obtained amount was then adjusted for labor force participation and unemployment rates to ensure that productivity losses more accurately reflect the real state, as presented in the following formula:

$$\text{productivity loss} = \frac{(t \times g \times 8) \times (p \div 100) \times ((100 - u) \div 100)}{\text{GVA}} \times 100$$

where:

t – time lost due to sickness absence (days of temporary incapacity for work),

g – average monthly gross earning per paid hour,

p – labor force participation rate,

u – unemployment rate,

GVA – gross value added.

Similar approach was also used in other researches (Maškarin Ribarić, 2019). Days of temporary incapacity for work (absence from work due to illness or injury) were obtained from the Croatian Health Insurance Fund's annual reports for the years 2018-2023 (2024). Data on the average monthly gross earning per paid hour were obtained from the Croatian Bureau of Statistics (CBS) (2024a). Labor force participation data were downloaded from the World Bank (2024), and unemployment rate data were sourced from Eurostat (2024). Gross value added (GVA) was used as a productivity measure, as seen in previous studies (Łyszczarz and Nojszewska, 2017). Data for the years 2018-2022 were obtained from the CBS (2024b), while data for 2023 were provided directly by CBS and represent the sum of the quarterly estimates for that year.

To estimate the costs of time lost due to sickness absence in the hospitality industry in Croatia for the years 2018-2023, the following calculations are used:

$$\text{sickness costs (economy)} = \frac{(t_e \times g_e)}{\text{GVA}_e} \times 100$$

$$\text{sickness costs (hospitality industry)} = \frac{(t_t \times g_t)}{\text{GVA}_t} \times 100$$

where:

t_e – time lost due to sickness absence (days of temporary incapacity for work) – Croatia,

t_t – time lost due to sickness absence (days of temporary incapacity for work) – hospitality industry (NKD “I”),

g_e – average monthly gross earning per paid hour – Croatia,

g_t – average monthly gross earning per paid hour – hospitality industry (NKD “I”),

GVA_e – gross value added – Croatia,

GVA_t – gross value added – hospitality industry (NKD “I”).

The total number of days of temporary incapacity for work is multiplied by the average monthly gross earning per paid hour, separately for the entire Croatian economy and for the hospitality industry alone (activity I – Accommodation and food service activities, Croatian National Classification of Activities; NKD 2007). Subsequently, the cost of time lost due to sickness absence is expressed as a percentage of the gross value added (GVA) for Croatia as a whole and for the hospitality industry specifically.

The third research paper is based on the main research conducted during April and May 2019 among hotel employees in Croatia. In the context of this research, employees of the Croatian hotel industry were those employed in business entities classified in the category 55.10 Hotels and similar accommodation, of NKD 2007. The number of employees taken into consideration for accessing sampling (the population) is set for the year 2018. According to the Croatian Chamber of Commerce data, Croatia had 31.703 employees who worked in 1.183 hotel entities. In order to estimate the sample size, an a priori power analysis was conducted, using the G*Power 3.1 program (Faul et. al., 2009). Based on an alpha error of the study as 0.05 and a power of 0.95, a sample size required 347 participants.

In order to access the acceptability of a larger study in a hotel environment and to test the questionnaire, a pilot study was conducted on 35 hotel employees. No irregularities were found in the given results.

The process of data collection had several steps. First, 100 hotel entities from the Croatian Ministry of Tourism and Sports data (2019) were randomly selected. After that, the permission from the hotel entity Director and/or Board of Directors to collect the data from their employees was asked. In total, 2338 questionnaires were distributed to hotel employees by e-mail or the courier/Human resource management department, depending on how the hotel entity management requested. Finally, 734 usable questionnaires were returned, which presents a response rate of 37.11% for the case where both a) the hotel entity Director and/or Board of Directors, and b) their employees, agreed to participate. After

fulfilling the survey, employees who received the questionnaire in person sealed their answers in an envelope in order to ensure anonymity and confidentiality.

As a main technique for data collection, the survey questionnaire was used. The questionnaire consisted of three parts, measuring the dependent, independent, and socio-demographic variables. Absenteeism was measured by self-reported sickness-absence frequency in the past 12 months. Sickness absence did not include the days of absence regarding maternity or parental leave. An original organizational commitment scale by Meyer et al. (1993) was previously translated in Croatian by Maslić Seršić (2000) and was used in this study. The questionnaire consisted of three subscales that measure affective, continuance, and normative commitment. As a measure of job involvement, ten items from Kanungo (1982) were used. All items for independent variables were assessed using a five-point Likert-type scale (strongly disagree=1 to strongly agree=5). Demographic and labor variables were gender, age, total length of service, length of service in the current company, level of education (low, medium, high), and type of working contract (part-time, full-time). Low educational level was defined as completing the primary school and vocational secondary school; medium education was defined as completing high school and high education was defined as completing university or PhD. Items with no previous translation were translated into Croatian using the double-blind back translation method.

The data analysis process involved several steps. First, an exploratory factor analysis was conducted in order to test the survey elements. Next, descriptive statistics were used to summarize the demographic, dependent, and independent variables. The Shapiro-Wilk test indicated that the data were not normally distributed ($p < 0.05$). Subsequently, the Mann-Whitney U test was conducted to examine the differences between groups. The association between variables was assessed using the Chi-square test of independence. Finally, logistic regression was utilized to estimate the relationship between the dependent and independent variables and to test hypotheses H, H4, H4a, H4b, H4c, H5, and H6. SPSS version 23 was used for data analysis.

4. RESULTS

In this chapter, the key findings of this doctoral dissertation and each of the three research papers are synthesized.

The first paper included a comprehensive systematic literature review of absenteeism antecedents and outcomes (Čikeš et al., 2018). An analysis of the key design characteristics of each study and the operationalization of the variables involved resulted in the following: the majority of the selected articles was published from 2010 onwards (28). All 100 articles contain empirical research supported by primary or secondary data. When it comes to study design, both experimental and observational study designs are included. Most of the selected studies used a cross-sectional design (70), 22 of them relied on longitudinal design, 5 were designed as quasi-experimental, and 3 used a mixed-method design. Data for these studies were collected using different methods. The majority of these studies, 43 of them, used survey questionnaires and organizational databases in combination as their method for data collection. Only databases were relied on in 32 studies, while solely survey questionnaires were used in 20 studies. Other combinations of data collection were also used: database, interview and focus group (1), interview and focus group (1), and interview and survey questionnaire (3). The majority of the studies was conducted on an individual level and the population consisted of employees. Most research took place among hospital staff, along with manufacturing, government, and bank employees. The main geographical source of these empirical studies is the United States of America (38 studies), followed by Canada (9) and Australia (8). Three studies among the selected 100 were conducted among a group of countries.

After the main characteristics were described, a comprehensive analysis of absenteeism determinants and outcomes was approached. Most of the 100 articles tested multiple variables of either the causes or consequences of absenteeism. 85 articles only tested antecedents, 8 only tested consequences, and 7 tested both. This literature review shows that absenteeism can be caused by many personal, demographic, attitudinal, health-related, organizational, and job determinants. What stand out the most as the most repetitive absenteeism causes are job satisfaction (18 times), organizational commitment (11), age (7), pay satisfaction (5), job involvement (3), and wages (3). Out of these six most-mentioned causes of absenteeism, four of them (job satisfaction, organizational commitment, pay satisfaction, and job involvement) belong to employees' attitudes. Additionally, the outcomes of absenteeism identified in this systematic literature review include productivity, turnover, satisfaction, organizational health, and quality.

After a thorough literature analysis on the theoretical aspects of absenteeism, its determinants and outcomes, more intensive research on secondary absenteeism data was conducted. Consequently, the second research paper focused on social security models in the EU, levels of absenteeism in the EU and Croatia, and the costs of sickness absenteeism in Croatia (Čikeš et al., 2024).

The analysis of social security models with a reference on the sickness benefits revealed considerable variation in waiting periods, employer obligations for continued payment, the amount of benefit provided, and the maximum duration of benefits across member states, supporting H3. These differences highlight the diverse approaches to managing sickness absence, reflecting each country's unique policy priorities. Further assessment of absenteeism data in EU showed great variations among member states in the last six years. Table 2 provides an overview of total absences from work in the EU from 2018 to 2023, presented as a percentage of absences relative to total employment.

Table 2 Absences from work in EU countries (2018-2023)

Year	2018	2019	2020	2021	2022	2023
Country / Unit of measure	% of total employment	% of total employment	% of total employment	% of total employment	% of total employment	% of total employment
EU 27	9.7	9.6	13.2	10.3	9.5	10.1
Belgium	10.2	10.5	14.9	11.8	10.8	11.4
Bulgaria	2.6	2.4	4.2	3.3	2.5	2.9
Czechia	8.2	8.6	11.6	12.0	11.8	12.5
Denmark	11.9	12.5	14.3	12.5	12.7	11.9
Germany	12.0	12.0	n/a	9.1	8.3	11.8
Estonia	8.5	9.0	9.8	11.8	12.7	12.2
Ireland	8.0	7.6	15.8	15.0	8.7	8.5
Greece	4.0	3.8	13.8	9.8	5.1	4.6
Spain	8.3	8.6	15.9	11.5	11.3	11.3
France	14.2	13.8	19.6	15.7	14.2	13.5
Croatia	9.7	9.9	14.4	11.0	9.5	10.5
Italy	7.5	7.5	14.3	8.6	6.8	6.3
Cyprus	7.0	7.1	17.3	11.4	9.8	8.2
Latvia	6.5	7.3	9.4	9.3	7.7	7.7
Lithuania	6.3	6.5	9.9	7.8	8.1	7.8
Luxembourg	8.7	8.6	11.2	8.2	7.8	8.2
Hungary	3.8	3.9	6.1	8.1	7.8	7.7
Malta	n/a	1.6	8.0	8.2	7.1	8.6

Netherlands	11.2	10.7	11.4	9.9	11.9	12.3
Austria	12.5	12.1	15.6	12.5	12.3	11.7
Poland	7.1	6.9	9.7	6.4	5.8	6.0
Portugal	9.1	8.9	14.8	12.8	11.0	10.4
Romania	1.7	1.7	4.8	1.8	2.0	2.1
Slovenia	10.7	11.2	16.8	9.6	10.3	12.9
Slovakia	7.2	6.6	12.3	12.3	10.9	10.1
Finland	13.5	13.8	14.3	15.2	14.8	15.2
Sweden	15.4	15.8	16.6	15.0	15.2	15.0

Source: Čikeš et. al. (2024), based on the data from Eurostat (2024a), *Labor force survey, Total absences from work by sex and age group - quarterly data*. Retrieved June 1, 2024, from: [https://ec.europa.eu/eurostat/databrowser/view/lfsi_abt_q\\$defaultview/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/lfsi_abt_q$defaultview/default/table?lang=en), https://doi.org/10.2908/LFSI_ABT_Q

As seen in Table 2, the highest rates of absences from work in the observed period (2018-2023) were recorded in France in 2020 at 19.6%, followed by Cyprus (17.3%) and Slovenia (16.8%). Conversely, the countries with the lowest share of absences in employment in 2020 were Bulgaria (4.2%), Romania (4.8%) and Hungary (6.1%). The overall absence rate for the EU peaked at 13.2% in 2020 and then decreased to 10.1% by 2023. Croatia's absence rate was 14.4% in 2020, decreasing to 10.5% by 2023.

Further results of the second research paper and the HCA method indicated a significant increase in productivity losses in Croatia due to sickness absence during the period from 2018 to 2023, expressed as a percentage of gross value added (GVA) (Table 3). From 2018 to 2023, the loss of productivity increased by 71.1%. In 2018, the loss of productivity accounted for 412 million EUR (0.96% of GVA), while the highest productivity loss is visible in 2023, counting for 704.9 million EUR, which is 1.11% of GVA.

Table 3 Loss of productivity due to sickness absence in Croatia, HCA method

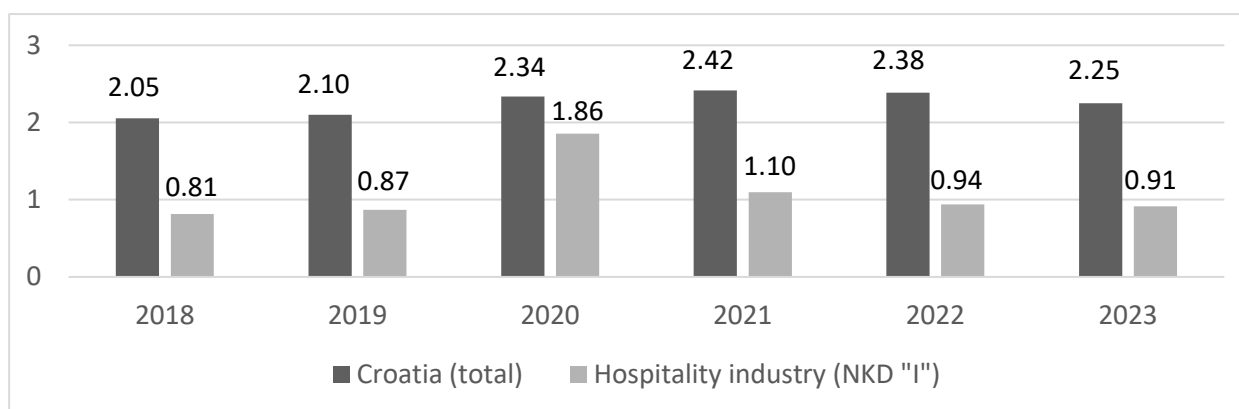
Year	Days of temporary incapacity for work	Average monthly gross earning per paid hour (in current	Labor force participation (%)	Unemployment rate (%)	Loss of productivity (in current prices, EUR)	GVA (in current prices, EUR)	Productivity loss in GVA (%)

		prices, EUR)					
2018	16,942,139	6.49	51.19	8.5	412,011,320	42,816,706,261	0.96
2019	17,566,616	6.74	51.10	6.6	452,070,083	45,117,833,198	1.00
2020	17,812,140	6.92	51.03	7.5	465,456,910	42,195,913,272	1.10
2021	20,166,464	7.23	51.78	7.6	558,074,343	48,298,122,882	1.16
2022	21,658,752	7.85	52.30	7.0	661,572,904	57,037,269,148	1.16
2023	19,811,999	9.00	52.63	6.1	704,952,339	63,437,372,700	1.11

Source: Čikeš et. al. (2024)

The costs of time lost due to sickness absence in the hospitality industry and the entire Croatian economy for the period 2018-2023 are presented in the Figure 1.

Figure 1 The cost of time lost due to sickness absence in Croatia (% of GVA)



Source: Čikeš et. al. (2024)

As shown in Figure 1, the share of the cost of time lost due to sickness absence in GVA ranges from 2.05% in 2018 to 2.25% in 2023 when observing the total economy. In the hospitality industry, these shares are much lower, ranging from 0.81% in 2018 to 0.91% in 2023. In 2020, the share of the cost of time lost in GVA for hospitality industry was the highest in the observed period, reaching 1.86%. For the entire economy, the highest rate was achieved in 2021, accounting for 2.42%. These results indicate that Croatian hospitality industry generally performs better than the overall economy. However, lower share of the costs of time lost in GVA in the hospitality industry, in comparison to the overall economy, are also the result of lower average monthly gross earning per paid hour and lower number of days of temporary incapacity for work (i.e., lower sick leave rate). The above-mentioned findings support H1 and H2.

The overview of absenteeism literature in the first research paper and the analysis of secondary data on absenteeism in the EU and Croatia in the second paper provided a comprehensive understanding of absenteeism. This groundwork established a foundation for conducting primary research in the third paper to examine the relationship between job attitudes and absenteeism in a sample of hotel employees in Croatia (Čikeš et. al., 2024a). The results of the third research paper are presented below.

Survey items and the results of the exploratory factor analysis are presented in Table 4. Kaiser–Meyer–Olkin (KMO) and Bartlett’s test of sphericity was used to test the suitability of items for factor analysis. KMO values were: 0.735 for affective commitment, 0.842 for continuance commitment, 0.858 for normative commitment, and 0.919 for job involvement, all exceeding the recommended value of above 0.5 (Kaiser, 1974). Bartlett’s test of sphericity was significant for all constructs, with a p-value of < 0.001. Further, principal components with eigenvalues greater than 1.0 and a varimax rotation for factor loadings were used to decide on the number of factors for every construct. Analysis extracted two factors for affective commitment, named joy affect factor and attachment affect factor, as previously elaborated by Bergami and Bagozzi (2000), and one factor for continuance and normative commitment, as well as for job involvement. Items with a factor loading lower than 0.6 were extracted from further analysis (one from the normative commitment scale and three from the job involvement scale). The KMOs for new factor structures were 0.850 for normative commitment ($p < 0.001$) and 0.922 for job involvement ($p < 0.001$). Cronbach's alpha showed excellent internal consistency for job involvement, good consistency for affective commitment – joy, continuance, and normative commitment; and questionable consistency for affective commitment – attachment (George and Mallery, 2003).

Table 4 Results of exploratory factor analysis

Items	Factor loading	Eigen value	Variance explained (%)	Reliability
<i>Affective commitment – overall</i>			68.295	0.731
<i>Affective commitment – factor joy</i>		2.647	44.110	0.828
This organization has a great deal of personal meaning for me.	0.875			
I really feel as if this organization's problems are my own.	0.837			

I would be very happy to spend the rest of my career with this organization.	0.853			
<i>Affective commitment – factor attachment</i>		1.451	24.185	0.684
I do not feel like 'part of the family' at my organization.*	0.791			
I do not feel 'emotionally attached' to this organization.*	0.776			
I do not feel a strong sense of belonging to my organization.*	0.755			
<i>Continuance commitment</i>		3.283	54.712	0.833
Right now, staying with my organization is a matter of necessity as much as desire.	0.610			
If I had not already put so much of myself into this organization, I might consider working elsewhere.	0.755			
One of the few negative consequences of leaving this organization would be the scarcity of available alternatives.	0.718			
It would be very hard for me to leave my organization right now, even if I wanted to.	0.766			
Too much of my life would be disrupted if I decided I wanted to leave my organization now.	0.828			
I feel that I have too few options to consider leaving this organization.	0.742			
<i>Normative commitment</i>		3.181	63.628	0.856
I would not leave my organization right now because I have a sense of obligation to the people in it.	0.739			
I owe a great deal to my organization.	0.816			

Even if it were to my advantage, I do not feel it would be right to leave my organization now.	0.855			
I would feel guilty if I left my organization now.	0.829			
This organization deserves my loyalty.	0.743			
<i>Job involvement</i>		4.565	65.217	0.910
The most important things that happen to me involve my present job.	0.749			
I live, eat and breathe my job.	0.828			
Most of my interests are centered around my job.	0.878			
I have very strong ties with my present job which would be very difficult to break.	0.846			
Most of my personal life goals are job-oriented.	0.840			
I consider my job to be very central to my existence.	0.778			
I like to be absorbed in my job most of the time.	0.724			

Note: *reverse-coded items

Source: Čikeš et. al. (2024a)

After factor analysis, the median split was used to create categorical variables for all independent and dependent variables. All values on the variables at or below the median are categorized as low and all values above the median are categorized as high (Table 5).

Table 5 Median values for dependent and independent variables

Variable	Median
Affective commitment – joy	3.67
Affective commitment – attachment	3.33
Continuance commitment	3.17

Normative commitment	3.2
Job involvement	3.28
Absenteeism frequency	0

Source: Čikeš et. al. (2024a)

In total, 734 employees participated in the study (37.1%). Most of the participants were women (60.9%). The median was 38 years. Most of the participants had a medium level of education (38.6%), followed by high (31.6%) and low education (29.8%). A total of 63.5% of employees had a full-time contract. At the time of filling out the survey, most employees (53.3%) worked in the current company for more than 5 years, while 56.3% of them had more than 10 years of overall experience. Most employees reported low commitment to the organization (50.7% for affective commitment – joy; 67.3% for affective commitment – attachment; 77.1% for continuance commitment; 77.4% for normative commitment) and low job involvement (73.8%). In total, high absenteeism was reported by 33.8% of participants.

The Mann-Whitney U test indicated a statistically significant difference in age concerning absenteeism frequency ($p=0.011$). The median age of employees with high absenteeism frequency is 35 years (20-65), which is lower compared to 39 years (19-65) for those in the low absenteeism frequency group. These findings indicate that younger employees are significantly more likely to be absent from work. Results of the test showed that no statistical difference was found between absenteeism frequency and the length of service, both in total or in the current company.

The chi-square test indicated a statistically significant difference in absenteeism frequency among employees based on their management level ($\chi^2 = 12.148$, $df = 3$, $p = 0.007$), as indicated in Table 6.

Table 6 Results of Chi-square test of independence for absenteeism frequency

Variable	Absenteeism frequency			X ²	df	p-value
	Total n (%)	Low n (%)	High n (%)			
<i>Gender</i>				1.503	1	0.220
Female	438 (60.9)	283 (59.3)	155 (64.0)			
Male	281 (39.1)	194 (40.7)	87 (36.0)			
<i>Type of working contract</i>				0.608	1	0.436
Full-time	457 (63.5)	298 (62.5)	159 (65.4)			

Part-time	263 (36.5)	179 (37.5)	84 (34.6)			
<i>Level of education</i>				1.310	2	0.520
Low	217 (29.8)	137 (28.4)	80 (32.5)			
Medium	281 (38.6)	190 (39.4)	91 (37.0)			
High	230 (31.6)	155 (32.2)	75 (30.5)			
<i>Member of management level</i>				12.148	3	0.007
No	515 (72.5)	325 (68.7)	190 (80.2)			
Yes, lower-level management	120 (16.9)	88 (18.6)	32 (13.5)			
Yes, middle-level management	62 (8.7)	51 (10.8)	11 (4.6)			
Yes, top-level management	13 (1.8)	9 (1.9)	4 (1.7)			
<i>Affective commitment – joy</i>				9.085	1	0.003
Low	372 (50.7)	227 (46.7)	145 (58.5)			
High	362 (49.3)	259 (53.3)	103 (41.5)			
<i>Affective commitment – attachment</i>				0.264	1	0.607
Low	494 (67.3)	324 (66.7)	170 (68.5)			
High	240 (32.7)	162 (33.3)	78 (31.5)			
<i>Continuance commitment</i>				0.053	1	0.818
Low	566 (77.1)	376 (77.4)	190 (76.6)			
High	168 (22.9)	110 (22.6)	58 (23.4)			
<i>Normative commitment</i>				10.160	1	0.001
Low	568 (77.4)	359 (73.9)	209 (84.3)			
High	166 (22.6)	127 (26.1)	39 (15.7)			
<i>Job involvement</i>				0.260	1	0.610
Low	542 (73.8)	356 (73.3)	186 (75.0)			
High	192 (26.2)	130 (26.7)	62 (25.0)			

Source: Čikeš et. al. (2024a)

As seen in Table 6, among the employees with low absenteeism frequency, most of them (68.7%) are not part of management, 18.6% of them belong to the lower-level, 10.8% to the middle-level, and 1.9% to the top-level management. In the group of employees with high absenteeism frequency, 80.2% of them don't belong to hotel management. Employees within top-level management have the lowest frequency of high absenteeism, at 1.7%. These findings suggest that absenteeism is less prevalent among

management, particularly top-level management, potentially due to higher levels of responsibility. A statistically significant difference exists in absenteeism frequency among groups with different levels of affective commitment – joy ($\chi^2 = 9.085$, $df = 1$, $p = 0.003$). Among employees with high absenteeism frequency, 58.5% demonstrate low affective commitment. Conversely, in a group of employees with low absenteeism frequency, 53.3% reported high affective commitment. There is also a statistically significant difference in absenteeism frequency between groups with varying levels of normative commitment ($\chi^2 = 10.160$, $df = 1$, $p = 0.001$). Among employees with low absenteeism frequency, 73.9% exhibit low normative commitment. In contrast, a higher proportion of employees with high absenteeism frequency, 84.3%, demonstrate high normative commitment. No statistical significance in a chi-square test was found between absenteeism and the following variables: gender, type of working contract, level of education, affective commitment – attachment, continuance commitment, and job involvement. This indicates that the observed differences between the groups are likely due to random chance rather than a meaningful association between the variables.

In order to test the hypotheses H4, H4a, H4b, H4c, H5 and H6, the logistic regression was applied. The results are shown in Table 7.

Table 7 Results of logistic regression

Variable	Absenteeism frequency		Job involvement	
	OR	95% CI	OR	95% CI
Affective commitment – joy	0.623***	0.457-0.848	9.688***	6.290-14.921
Affective commitment – attachment	0.918***	0.661-1.274	2.300***	6.290-14.921
Continuance commitment	1.043	0.726-1.500	4.887***	3.375-7.075
Normative commitment	0.527***	0.355-0.785	9.517***	6.447-14.049
Job involvement	0.913	0.643-1.296		

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Source: Čikeš et. al. (2024a)

Negative relationships were found between absenteeism and: affective commitment – joy (OR = 0.623, 95%CI = 0.457-0.848, $p = 0.003$) and normative commitment (OR = 0.527, 95%CI = 0.355-0.785, $p = 0.002$). Significant relationship between affective commitment – attachment, continuance commitment

or job involvement and absenteeism was not found. These findings partially confirm H, H4 and H4a, reject H4b and H5, and confirm H4c. All three dimensions of organizational commitment had a significantly positive effect on job involvement: the highest impact had affective commitment – joy (OR = 9.688, 95%CI = 6.290-14.921, $p < 0.000$), followed by normative commitment (OR = 9.517, 95%CI = 6.447-14.049, $p < 0.000$), continuance commitment (OR = 4.887, 95%CI = 3.375-7.075, $p < 0.000$) and affective commitment – attachment (OR = 2.300, 95%CI = 1.641-3.240, $p < 0.000$). The higher the employees' commitment is, the higher is their job involvement, supporting hypothesis H6.

As previously elaborated, each of the three research papers contributed to achieving conceptual, empirical and applicative research objectives, as well as to testing the hypotheses.

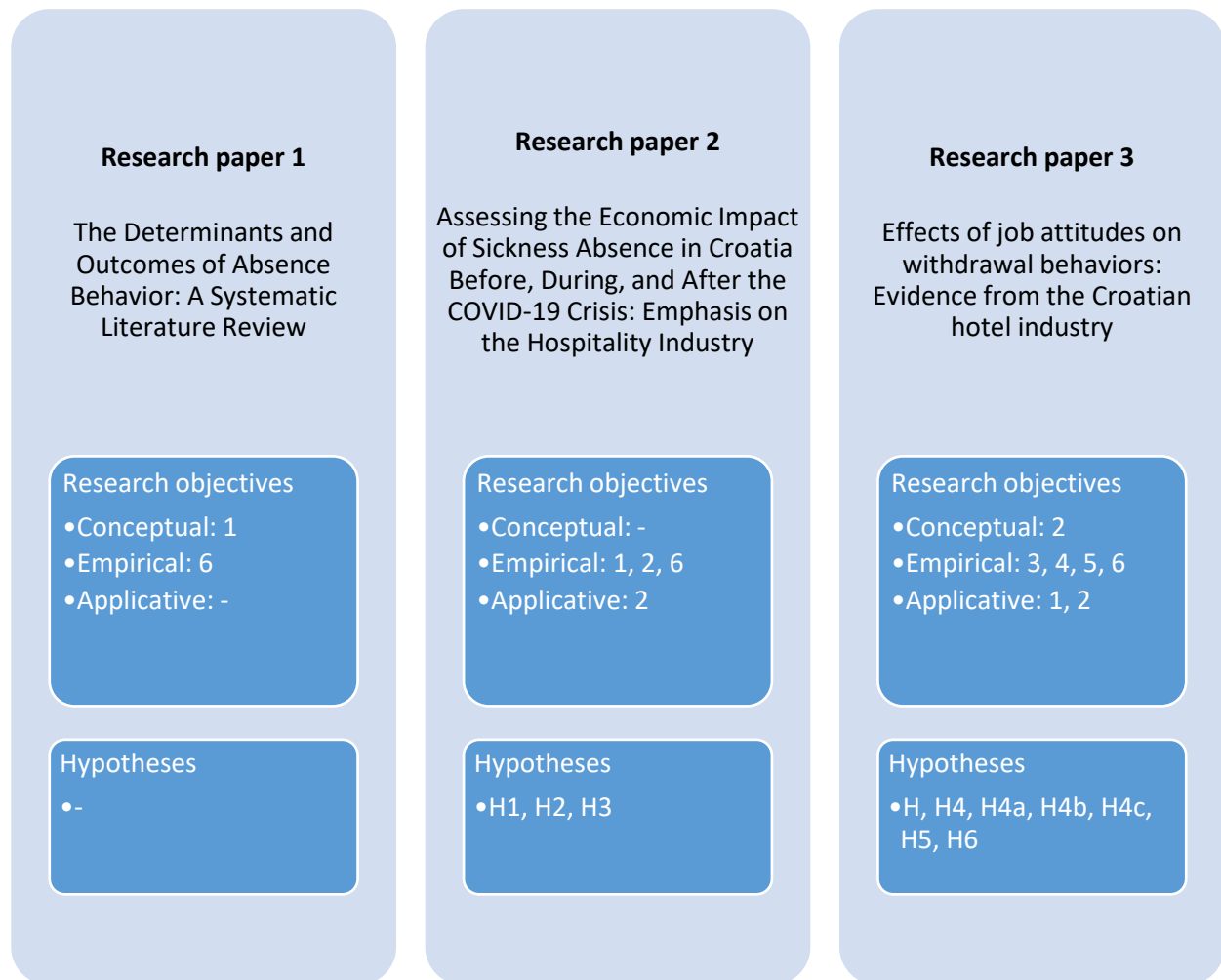
5. CONCLUSION

Managing absenteeism is one of the tasks of human resource management that can have a significant impact on a company's business efficiency. Insights into how absenteeism can be influenced by managing employees' job attitudes are not sufficiently applied in practice, leading to the neglect of a significant and potent factor for managing organizational outcomes and success.

This doctoral thesis aimed to enhance the understanding of absenteeism within the hotel industry, identify its causes, and explore ways to reduce it by influencing employees' job attitudes. This was achieved through three research papers. The first paper provided a comprehensive overview of absenteeism, its determinants, and outcomes. The second paper conducted a detailed analysis of sickness absenteeism data in the EU and Croatia, with a special focus on absenteeism costs. The third paper examined the relationship between job attitudes (organizational commitment and job involvement) and absenteeism, using the hotel industry as an example.

5.1 DISCUSSION

Throughout the research papers, using different methodological approaches, all research objectives have been achieved, and all hypotheses have been tested. Figure 2 presents the summary of the relationship between the scientific paper, research objective, and hypothesis, which represents the outcomes of the thesis.

Figure 2 Thesis outcomes

Source: own compilation

Conceptual objectives were achieved through a systematic review of the knowledge about absenteeism, its causes and consequences in the first paper (Figure 2). Theoretical knowledge about two job attitudes explored in this thesis – organizational commitment and job involvement – was systematized in the third research paper. As part of the empirical research objectives, an analysis of the social security models and the data on absenteeism in the EU and Croatia, with a special focus on the hospitality industry, was conducted in the second research paper. Relationships between dimensions of organizational commitment, job involvement and absenteeism were tested in the third paper. Applicative objectives were achieved in the second and third papers, where the practical applicability of the research results and conclusions for hotel companies was emphasized and specific guidelines for mitigating the negative economic impact of absenteeism were proposed. With all this being said, the main objective of the

research was achieved and the relation between employees' job attitudes (organizational commitment and job involvement) and absenteeism on the example of the hotel industry was explored. The relationship between organizational commitment was determined, but no relationship was found between job involvement and absenteeism.

An overview of hypotheses testing results is shown in the Table 8.

Table 8 Overview of hypotheses testing results

Hypothesis	Research paper 1	Research paper 2	Research paper 3
H: There is a significant relationship between job attitudes and absenteeism.	-	-	Partially supported
H1: Absenteeism is a complex phenomenon that affects business operations.	-	Supported	-
H2: Absenteeism in the hospitality industry is associated with increased operating costs.	-	Supported	-
H3: There are significant differences between social security models in EU countries.	-	Supported	-
H4: Organizational commitment is negatively related to absenteeism.	-	-	Partially supported
H4a: Affective commitment is negatively related to absenteeism.	-	-	Partially supported
H4b: Continuance commitment is negatively related to absenteeism.	-	-	Not supported
H4c: Normative commitment is negatively related to absenteeism.	-	-	Supported
H5: Job involvement is negatively related to absenteeism.	-	-	Not supported

H6: Organizational commitment and job involvement are positively related.	-	-	Supported
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Source: own compilation

As seen in the Table 8, the main hypothesis is partially supported. Auxiliary hypotheses 1-3 were tested in the second research paper, and all three are supported. Due to the fact that H4a was partially supported, H4b was not supported and H4c was supported, auxiliary hypotheses 4 related to the relationship between organizational commitment and absenteeism was partially supported. Since no relationship was found between job involvement and absenteeism, auxiliary hypothesis 5 is not supported. However, auxiliary hypothesis 6 is supported due to the statistically significant and positive relationship between organizational commitment and job involvement.

5.2 METHODOLOGICAL CONSIDERATIONS

After discussing the obtained results, this section outlines the limitations of the conducted researches, and the challenges and shortcomings of the applied methods.

The first paper, while providing several starting points for practitioners and researchers investigating absenteeism and its determinants and outcomes, has certain limitations. It is confined to the Scopus database and is restricted to studies published in the English language.

The second paper utilized the Human Capital Approach to calculate absenteeism costs in terms of productivity losses and even though this method is used very often in the literature, it is criticized because of the possibility of overestimation of these costs. Also, this study was conducted in Croatia and when comparing its results with those of other countries, a careful consideration of differences in economic structures, healthcare systems, and labor market conditions has to be taken into account.

The third paper also has several limitations. The primary limitation is the use of self-reported absence data, which may lead to underreporting or overreporting due to employees' lack of memory or the fear of consequences. Additionally, a limitation of this study is the definition and measurement of absenteeism. In this research, absenteeism was defined specifically as sickness absence and was measured by its frequency. Finally, the study was limited to examining two out of many job attitudes – organizational commitment and job involvement – and their relationship with absenteeism.

5.3 COMPARISON WITH OTHER STUDIES

This research aligns with previous findings in several ways. The results in the first paper indicate a clear imbalance between empirical research on absenteeism determinants and research on its outcomes. Most studies analyzed through systematic literature review show that absenteeism has negative implications: it lowers productivity, satisfaction, organizational health, outputs, and quality, while increasing turnover and costs, consistent with the conclusions of Goodman and Atkin (1984). While two prior studies related to absenteeism (Daouk-Öyry et al., 2014; Davey et al., 2009) also used a systematic literature review methodology, they focused solely on the hospital setting and analyzed a much shorter period.

Significant differences between social security models in EU countries concerning sickness benefit schemes, reported in the second research paper, were also previously noted by Spasova, Bouget, and Vanhercke (2016) and Chaupain-Guillot and Guillot (2017). This paper also revealed significant differences in sick leave rates between Croatia's hospitality industry and its general economy, aligning with the findings of Maškarin Ribarić, Derado, and Čikeš (2018).

The third paper found negative relationships between absenteeism and affective commitment (joy) and normative commitment. These findings are consistent with Allen and Meyer (2000) and Somers (1995), who also identified affective commitment as a predictor of absenteeism and turnover. However, no significant relationship was found between absenteeism and continuance commitment or job involvement, which aligns with the results of Brooke and Price (1989). Additionally, all dimensions of organizational commitment had a significantly positive effect on job involvement, supporting the notion that higher employee commitment leads to greater job involvement, as also found by Čulibrk et al. (2018).

5.4 SCIENTIFIC AND APPLIED CONTRIBUTION

This thesis significantly contributes to the theoretical understanding of absenteeism in all three papers and especially by summarizing the possible causes and consequences of absenteeism found in a systematic literature review. It creates an accessible pool of knowledge about the determinants and outcomes of absence behavior, which can be easily replicated due to its adherence to principles of

transparency, inclusivity, explanation, and heurism. The research addresses the evident imbalance between studies on absenteeism determinants and their outcomes, highlighting the predominantly negative implications of absenteeism such as reduced productivity and increased costs. Furthermore, the thesis expands on the limited studies addressing the relationship between job attitudes and withdrawal behaviors, particularly in the context of the Croatian hotel industry, thus filling a significant gap in both international literature and Croatian scientific practice.

Methodologically, this thesis introduces innovative approaches to the study of absenteeism. The use of the Human Capital Approach to estimate the costs of sickness absence, while incorporating the labor force participation rate and unemployment rate, provides a more accurate reflection of absenteeism's economic impacts by addressing criticisms of overestimation in traditional productivity cost assessments. Additionally, this thesis emphasizes the need for standardized methods for measuring, collecting, and expressing sickness absence data among countries, including rates, causes, and costs. Such standardization can facilitate better comparisons and improve absenteeism monitoring systems.

The applied contributions of this thesis are evident in its practical implications for policymakers and organizations. The research provides empirical evidence supporting significant differences in sickness absence rates and costs between the hospitality industry and the broader economy. These insights suggest potential areas for targeted support mechanisms that can be adapted and applied to other sectors to reduce absenteeism. Practical strategies include clear absence management policies, improved working conditions, work-life balance initiatives, wellness and incentive programs, and flexible work arrangements. The insights about the differences in social security models and sickness benefit schemes across EU countries, reflected in the diverse policy priorities and approaches to managing sickness absence, can provide a valuable comparative framework for policymakers. Elements of the most effective social security models and best practices could be implemented in EU countries with the highest absenteeism rates. By considering these suggestions, policymakers can help create more efficient social security systems that balance the needs of both employees and employers.

The empirical research conducted within the hotel industry offers new and clearer insights into absenteeism and employees' job attitudes, identifying key factors that influence these attitudes and their interrelations. An original survey for measuring these variables was created, tested, and adapted for the hotel industry. The findings emphasize the need to focus on younger employees and those with shorter tenures, particularly within the hotel industry, by offering tailored compensation, benefits, and greater

involvement in management processes. These strategies are essential for improving job attitudes and reducing absenteeism behavior.

Overall, this thesis provides valuable theoretical, methodological, and applied contributions that enhance the understanding of absenteeism and offer practical solutions for managing it within the hotel industry and beyond.

5.5 IMPLICATIONS FOR FURTHER RESEARCH

This doctoral thesis, along with the research conducted in the three accompanying papers, has opened up new pathways and highlighted potential directions for future research.

Firstly, while this research focused on the hospitality industry due to its significant role in the Croatian economy, there is a need to examine absenteeism in other sectors. The costs and aspects of absenteeism can vary greatly between industries such as manufacturing, healthcare, education, and public services. Future studies should explore these differences which would contribute to a more detailed understanding of absenteeism.

Secondly, the use of self-reported absence data introduces potential bias, as employees may underreport or over-report absenteeism. Future research should consider utilizing company-registered sickness absenteeism data, which is likely to be more reliable. Moreover, expanding the definition and measurement of absenteeism beyond sickness absence to include other absenteeism forms, might provide a different picture.

Thirdly, future studies might consider exploring presenteeism, as it is closely related to absenteeism and can similarly impact organizational productivity and employee well-being.

Additionally, this study examined two job attitudes – organizational commitment and job involvement – and their relation to absenteeism. Future research could investigate a broader range of job attitudes, such as employee engagement, work stress, and perceived organizational support, to understand their impact on absenteeism. This would help to identify which attitudes are most influential and how they interact to affect absence behavior.

Finally, future research should focus on developing and testing interventions aimed at reducing absenteeism. Programs such as wellness initiatives, flexible work arrangements, employee assistance

programs, and targeted support mechanisms for high-risk groups could be explored. Assessing the effectiveness of these interventions in various industries would provide practical solutions for employers and policymakers.

6. REFERENCES

- Adebayo, S. O. & Nwabuoku, U. C. (2008). Conscientiousness and Perceived Organizational Support as Predictors of Employee Absenteeism. *Pakistan Journal of Social Sciences*, 5 (4), 363-367.
- Allen, N. J. & Meyer, J. P. (1996). Affective, continuance, and normative commitment to the organization: An examination of construct validity, *Journal of Vocational Behavior*, 49 (3), 252-276. <https://doi.org/10.1006/jvbe.1996.0043>
- Allen, N. J., & Meyer, J. P. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of occupational psychology*, 63 (1), 1-18. <https://doi.org/10.1111/j.2044-8325.1990.tb00506.x>
- Allen, S. G. (1983). How much does absenteeism cost?. *Journal of Human Resources*, 18 (3), 379-393. <https://doi.org/10.2307/145207>
- Barmby, T., Nolan, M., & Winkelmann, R. (2001). Contracted workdays and absence. *The Manchester School*, 69 (3), 269-275. <https://doi.org/10.1111/1467-9957.00247>
- Bennett, H. (2002). Employee commitment: the key to absence management in local government?. *Leadership & Organization Development Journal*, 23 (8), 430-441. <https://doi.org/10.1108/01437730210449320>
- Bergami, M., & Bagozzi, R. P. (2000). Self-categorization, affective commitment and group self-esteem as distinct aspects of social identity in the organization. *British journal of social psychology*, 39 (4), 555-577. <https://doi.org/10.1348/014466600164633>
- Boon, C., Belschak, F. D., Den Hartog, D. N., & Pijnenburg, M. (2014). Perceived human resource management practices. *Journal of Personnel Psychology*, 13 (1), 21-33. <https://doi.org/10.1027/1866-5888/a000101>
- Brborovic, H., Brborovic, O. & Mustajbegovic, J. (2016). Looking for the Possible Association Between Stress, Presenteeism and Absenteeism Among Croatian Nurses: A Cross-Sectional Study", *Iranian journal of psychiatry and behavioral sciences*, 10 (4), 4587-4594. <https://doi.org/10.17795/ijpbs-4587>
- Brief, A. P., & Weiss, H. M. (2002). Organizational behavior: Affect in the workplace. *Annual review of psychology*, 53(1), 279-307. <https://doi.org/10.1146/annurev.psych.53.100901.135156>
- Brooke Jr, P. P., & Price, J. L. (1989). The determinants of employee absenteeism: An empirical test of a causal model. *Journal of occupational psychology*, 62 (1), 1-19. <https://doi.org/10.1111/j.2044-8325.1989.tb00473.x>

- Brown, S. P. (1996). A meta-analysis and review of organizational research on job involvement. *Psychological bulletin*, 120 (2), 235-255. <https://doi.org/10.1037//0033-2909.120.2.235>
- Buschak, M., Craven, C., & Ledman, R. (1996). Managing absenteeism for greater productivity. *SAM Advanced Management Journal*, 61 (1), 26-31.
- Chadwick-Jones, J. K., Brown, C. A., Nicholson, N., & Sheppard, C. (1971). Absence measures: their reliability and stability in an industrial setting. *Personnel psychology*, 24 (3), 463-470. <https://doi.org/10.1111/J.1744-6570.1971.Tb00368.X>
- Chaupain-Guillot a, S., & Guillot b, O. (2017). Sickness benefit rules and work absence: an empirical study based on European data. *Revue d'économie politique*, 6, 1109-1137. <https://doi.org/10.3917/redp.276.1109>
- Cheloha, R. S., & Farr, J. L. (1980). Absenteeism, job involvement, and job satisfaction in an organizational setting. *Journal of Applied Psychology*, 65 (4), 467-473. <https://doi.org/10.1037/0021-9010.65.4.467>
- Croatian Bureau of Statistics. (2024). *Aktivno stanovništvo u Republici Hrvatskoj u 2023. – prosjek godine* [Active population in the Republic of Croatia in 2023 – annual average]. Retrieved May 2, 2024, from <https://podaci.dzs.hr/media/g3eh2t5r/rad-2024-3-2-aktivno-stanovni%C5%A1tvo-u-republici-hrvatskoj-u-2023-prosjek-godine.pdf>
- Croatian Bureau of Statistics (2024a). *Average monthly gross earnings per hour of work in legal entities, according to NKD 2007 months, results from JOPPD forms*. Retrieved June 1, 2024, from: <https://podaci.dzs.hr/media/yegdgb5v/place.xlsx>
- Croatian Bureau of Statistics (2024b). *Gross value added by activities and gross domestic product, current prices, 1995 - 2022 (ESA 2010)*. Retrieved June 1, 2024, from: <https://podaci.dzs.hr/media/c51dcnbr/bruto-domaci-proizvod-godisnji.xlsx>
- Croatian Health Insurance Fund (2024). *Annual reports 2018-2023*. Retrieved June 1, 2024, from: <https://hzzo.hr/o-nama/izvjesca>
- Croatian National Bank (2024). *Release of statistical data on the balance of payments, gross external debt position and international investment position for the fourth quarter of 2023*. Retrieved May 2, 2024, from <https://www.hnb.hr/en/-/objava-statistickih-podataka-o-platnoj-bilanci-stanju-bruto-inozemnog-duga-i-stanju-me-unarodnih-ulaganja-za-cetvrto-tromjesecje-2023->
- Cucchiella, F., Gastaldi, M., & Ranieri, L. (2014). Managing absenteeism in the workplace: the case of an Italian multiutility company. *Procedia-Social and Behavioral Sciences*, 150, 1157-1166. <https://doi.org/10.1016/j.sbspro.2014.09.131>

- Čikeš, V., Črnjar, K., & Maškarin Ribarić, H. (2024). Assessing the economic impact of sickness absence in Croatia before, during, and after the COVID-19 crisis: emphasis on the hospitality industry. *Intellectual Economics*, 18 (1), 154-176. <https://doi.org/10.13165/IE-24-18-1-07>
- Čikeš, V., Črnjar, K., & Maškarin Ribarić, H. (2024a). Effects of job attitudes on withdrawal behaviors: Evidence from the Croatian hotel industry. *Zbornik radova Ekonomskog fakulteta u Rijeci: časopis za ekonomsku teoriju i praksu*, 42 (1), 39-64. <https://doi.org/10.18045/zbefri.2024.1.39>
- Čikeš, V., Maškarin Ribarić, H., & Črnjar, K. (2018). The determinants and outcomes of absence behavior: a systematic literature review. *Social Sciences*, 7 (8), 120. <https://doi.org/10.3390/socsci7080120>
- Ćulibrk, J., Delić, M., Mitrović, S., & Ćulibrk, D. (2018). Job satisfaction, organizational commitment and job involvement: The mediating role of job involvement. *Frontiers in psychology*, 9, 328-333, <https://doi.org/10.3389/fpsyg.2018.00132>
- Daouk-Öyry, L., Anouze, A. L., Otaki, F., Dumit, N. Y., & Osman, I. (2014). The JOINT model of nurse absenteeism and turnover: a systematic review. *International journal of nursing studies*, 51 (1), 93-110. <https://doi.org/10.1016/j.ijnurstu.2013.06.018>
- Davey, M. M., Cummings, G., Newburn-Cook, C. V., & Lo, E. A. (2009). Predictors of nurse absenteeism in hospitals: a systematic review. *Journal of nursing management*, 17 (3), 312-330. <https://doi.org/10.1111/j.1365-2834.2008.00958.x>
- Duff, A. J., Podolsky, M., Biron, M., & Chan, C. C. (2015). The interactive effect of team and manager absence on employee absence: A multilevel field study. *Journal of Occupational and Organizational Psychology*, 88 (1), 61-79. <https://doi.org/10.1111/joop.12078>
- Eurostat (2024). *Unemployment by sex and age – annual data*. Retrieved June 1, 2024, from: https://ec.europa.eu/eurostat/databrowser/product/page/une_rt_a, https://doi.org/10.2908/UNE_RT_A
- Eurostat (2024a). *Labor force survey, Total absences from work by sex and age group - quarterly data*. Retrieved June 1, 2024, from: [https://ec.europa.eu/eurostat/databrowser/view/lfsi_abt_q\\$defaultview/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/lfsi_abt_q$defaultview/default/table?lang=en), https://doi.org/10.2908/LFSI_ABT_Q
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior research methods*, 41 (4), 1149-1160. <https://doi.org/10.3758/BRM.41.4.1149>

- Freund, A., & Carmeli, A. (2003). An empirical assessment: reconstructed model for five universal forms of work commitment. *Journal of Managerial Psychology, 18* (7), 708-725. <https://doi.org/10.1108/02683940310502403>
- George, D., Mallery, P. (2003) *SPSS for Windows step by step: A simple guide and reference, 11.0 update*, 4th edition, Boston, MA: Allyn & Bacon.
- Goodman, P.S. & Atkin, R.S. (1984). Effects of absenteeism on individuals and organizations. In Goodman, P.S. & Atkin, R.S. (Eds), *Absenteeism: New approaches to understanding, measuring, and managing employee absence*, Jossey-Bass, San Francisco, 276-321.
- Hackett, R. D., Bycio, P., & Hausdorf, P. (1992). Further assessments of a three-component model of organizational commitment. *Academy of Management Proceedings, 1992* (1), 212-216. <https://doi.org/10.5465/ambpp.1992.17515585>
- Harrison, D. A., Newman, D. A., & Roth, P. L. (2006). How important are job attitudes? Meta-analytic comparisons of integrative behavioral outcomes and time sequences. *Academy of Management journal, 49* (2), 305-325. <https://doi.org/10.5465/amj.2006.20786077>
- Ho, C. C., Oldenburg, B., Day, G., & Sun, J. (2012). Work values, job involvement, and organizational commitment in Taiwanese nurses. *International Journal of Psychology and Behavioral Sciences, 2* (3), 64-70. <https://doi.org/10.5923/j.ijpbs.20120203.02>
- Jablonskienè, D. (2013). Influence of pension funds and life insurance on old-age pension. *Intelektinė ekonomika, 7* (3), 375-388. <https://doi.org/10.13165/ie-13-7-3-08>
- Jerneić, Ž., & Kutleša, V. (2012). Stavovi prema radu, radni učinak i namjera napuštanja organizacije kod znanstvenih djelatnika. *Suvremena psihologija, 15*(1), 43-64.
- Johns, G. (2011). Attendance dynamics at work: the antecedents and correlates of presenteeism, absenteeism, and productivity loss. *Journal of occupational health psychology, 16* (4), 483-500. <https://doi.org/10.1037/a0025153>
- Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The job satisfaction–job performance relationship: A qualitative and quantitative review. *Psychological Bulletin, 127* (3), 376-407. <https://doi.org/10.1037/0033-2909.127.3.376>
- Kanungo, R. N. (1982). Measurement of job and work involvement. *Journal of Applied Psychology, 67* (3), 341-349. <https://doi.org/10.1037/0021-9010.67.3.341>

- Kim, M. S., & Hunter, J. E. (1993). Attitude-behavior relations: A meta-analysis of attitudinal relevance and topic. *Journal of communication*, 43 (1), 101-142. <https://doi.org/10.1111/j.1460-2466.1993.tb01251.x>
- Kocakulah, M.C., Kelley, A.G., Mitchell, K.M. & Ruggieri, M.P. (2016). Absenteeism problems and costs: causes, effects and cures. *The International Business & Economics Research Journal (Online)*, 15 (3), 89-96. <https://doi.org/10.19030/iber.v8i5.3138>
- Kolz, A. R. (1999). Personality Predictors of Retail Employee Theft and Counterproductive Behavior. *Journal of Professional Services Marketing*, 19 (2), 107-114. https://doi.org/10.1300/J090v19n02_06
- Kuruüzüm, A., Ipekçi Çetin, E., & Irmak, S. (2009). Path analysis of organizational commitment, job involvement and job satisfaction in Turkish hospitality industry. *Tourism review*, 64 (1), 4-16. <https://doi.org/10.1108/16605370910948821>
- Labrague, L. J., Nwafor, C. E. & Tsaras, K. (2020). Influence of Toxic and Transformational Leadership Practices on Nurses' Job Satisfaction, Job Stress, Absenteeism and Turnover Intention: A Cross-sectional Study. *Journal of Nursing Management*, 28 (5), 1104-1113. <https://doi.org/10.1111/jonm.13053>
- Lodahl, T. M., & Kejnar, M. (1965). The definition and measurement of job involvement. *Journal of Applied Psychology*, 49 (1), 24-33. <https://doi.org/10.1037/h0021692>
- Lok, P., & Crawford, J. (2001). Antecedents of organizational commitment and the mediating role of job satisfaction. *Journal of managerial psychology*, 16 (8), 594-613. <https://doi.org/10.1108/eum000000006302>
- Løkke Nielsen, A. K. (2008). Determinants of absenteeism in public organizations: a unit-level analysis of work absence in a large Danish municipality. *The International Journal of Human Resource Management*, 19 (7), 1330-1348. <https://doi.org/10.1080/09585190802110158>
- Łyszczarz, B. & Nojszewska, E. (2017). Productivity losses and public finance burden attributable to breast cancer in Poland, 2010–2014. *BMC cancer*, 17, 1-13. <https://doi.org/10.1186/s12885-017-3669-7>
- Maslić Seršić, D. (2000). Što je odanost i kako je možemo mjeriti?. *Suvremena psihologija*, 3(1-2), 99-111.
- Mastekaasa, A. (2020). Absenteeism in the Public and the Private Sector: Does the Public Sector Attract High Absence Employees??. *Journal of Public Administration Research and Theory*, 30 (1), 60-76. <https://doi.org/10.1093/jopart/muz003>
- Maškarin Ribarić, H. (2019). Razmjeri i efekti bolovanja u hrvatskom ugostiteljstvu—osvrt na produktivnost. *Oeconomica Jadertina*, 9 (1), 24-33. <https://doi.org/10.15291/oec.2835>

- Maškarin Ribarić, H., Derado, D. & Čikeš, V. (2018). International comparison of productivity in manufacturing and services with reference to sickness leaves. In *7. međunarodni znanstveni simpozij: Gospodarstvo istočne Hrvatske–vizija i razvoj=7th International Scientific Symposium: Economy of Eastern Croatia–Vision and Growth*, 346-359.
- Mathieu, J. E., & Zajac, D. M. (1990). A review and meta-analysis of the antecedents, correlates, and consequences of organizational commitment. *Psychological Bulletin*, *108* (2), 171-194. <https://doi.org/10.1037/0033-2909.108.2.171>
- McHugh, M. (2002). The absence bug: a treatable viral infection?. *Journal of managerial psychology*, *17* (8), 722-738. <https://doi.org/10.1108/02683940210450510>
- Meyer, J. P., & Allen, N. J. (1991). A three-component conceptualization of organizational commitment. *Human resource management review*, *1* (1), 61-89. [https://doi.org/10.1016/1053-4822\(91\)90011-z](https://doi.org/10.1016/1053-4822(91)90011-z)
- Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organizations and occupations: Extension and test of a three-component conceptualization. *Journal of applied psychology*, *78* (4), 538-551. <https://doi.org/10.1037//0021-9010.78.4.538>
- Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of vocational behavior*, *61* (1), 20-52. <https://doi.org/10.1006/jvbe.2001.1842>
- Monkevičius, A. (2014). Quality of working life concept and empirical indicators. *Intelektinė ekonomika*, *8* (1), 8-24. <https://doi.org/10.13165/ie-14-8-1-01>
- Morrow, P.C., McElroy, J.C., Lacznia, K.S. & Fenton, J.B. (1999). Using absenteeism and performance to predict employee turnover: Early detection through company records. *Journal of vocational behavior*, *55* (3), 358-374. <https://doi.org/10.1006/jvbe.1999.1687>.
- Mowday, R. T., Porter, L. W., & Steers, R. M. (1982). *Employee–organization linkages: The psychology of commitment, absenteeism, and turnover*. New York: Academic Press.
- Mukwevho, H., Nesamvuni, A. E. & Roberson, J. R. (2020). Factors Impacting Employee Absenteeism and the Managers' Perception of its Causes in the Hotel Industry., *African Journal of Hospitality, Tourism and Leisure*, *9* (5), 1161-1177. <https://doi.org/10.46222/ajht.1.19770720-75>
- Mutual Information System on Social Protection (2024). *Comparative table database (update as at July 7, 2023)*, European Commission. Retrieved June 2, 2024, from: <https://www.missoc.org/missoc-database/comparative-tables/>

- Navarro, C. & Bass, C. (2006). The cost of employee absenteeism. *Compensation & Benefits Review*, 38 (6), 26-30. <https://doi.org/10.1177/0886368706295343>
- Ng, T. W., & Feldman, D. C. (2010). The relationships of age with job attitudes: a meta-analysis. *Personnel Psychology*, 63 (3), 677-718. <https://doi.org/10.1111/j.1744-6570.2010.01184.x>
- Nowak, J. et al. (2023) Nowak, J., Emmermacher, A., Wendsche, J., Döbler, A. S., & Wegge, J. (2023). Presenteeism and absenteeism in the manufacturing sector: A multilevel approach identifying underlying factors and relations to health. *Current Psychology*, 42 (22), 18641-18659. <https://doi.org/10.1007/s12144-022-03013-1>
- Pizam, A., & Thornburg, S. W. (2000). Absenteeism and voluntary turnover in Central Florida hotels: a pilot study. *International Journal of Hospitality Management*, 19 (2), 211-217. [https://doi.org/10.1016/S0278-4319\(00\)00011-6](https://doi.org/10.1016/S0278-4319(00)00011-6)
- Pfeifer, C. (2010). Impact of wages and job levels on worker absenteeism. *International Journal of Manpower*, 31 (1), 59-72. <https://doi.org/10.1108/01437721011031694>
- Punnett, B. J., Greenidge, D., & Ramsey, J. (2007). Job attitudes and absenteeism: A study in the English speaking Caribbean. *Journal of World Business*, 42 (2), 214-227. <https://doi.org/10.1016/j.jwb.2007.02.006>
- Republic of Croatia, Ministry of Tourism and Sport (2019). *Popis kategoriziranih turističkih objekata u Republici Hrvatskoj (7. 3. 2019.)* [List of categorised tourist facilities in the Republic of Croatia (7. 3. 2019)], Available at: https://mint.gov.hr/UserDocsImages/AA_2018_c-dokumenti/190307_kategorizirani.xlsx
- Sagie, A. (1998). Employee absenteeism, organizational commitment, and job satisfaction: Another look. *Journal of vocational behavior*, 52 (2), 156-171. <https://doi.org/10.1006/jvbe.1997.1581>
- Saha, S., Saint, S., & Christakis, D. A. (2003). Impact factor: a valid measure of journal quality?. *Journal of the Medical Library Association*, 91 (1), 42-46.
- Salancik, G. R., & Pfeffer, J. (1977). An Examination of Need-Satisfaction Models of Job Attitudes. *Administrative Science Quarterly*, 22 (3), 427-465. <https://doi.org/10.2307/2392182>
- Saxena, S. & Saxena, R. (2015). Impact of Job Involvement and Organizational Commitment on Organizational Citizenship Behavior. *International Journal of Management and Business Research*, 5 (1), 19-30.
- Schalk, R. (2011). The influence of organizational commitment and health on sickness absenteeism: a longitudinal study. *Journal of nursing management*, 19 (5), 596-600. <https://doi.org/10.1111/j.1365-2834.2010.01170.x>

- Scoppa, V. (2010). Worker absenteeism and incentives: evidence from Italy. *Managerial and Decision Economics*, 31 (8), 503-515. <https://doi.org/10.1002/mde.1504>
- Somers, M. J. (1995). Organizational commitment, turnover and absenteeism: An examination of direct and interaction effects. *Journal of organizational Behavior*, 16 (1), 49-58. <https://doi.org/10.1002/job.4030160107>
- Spasova, S., Bouget, B. & Vanhercke, B. (2016). *Sick Pay and Sickness Benefit Schemes in the European Union. (Background report for the Social Protection Committee's)*. Brussels, Belgium: European Commission. <https://doi.org/10.2767/531076>
- Steel, R. P. (2003). Methodological and operational issues in the construction of absence variables. *Human Resource Management Review*, 13 (2), 243-251. [https://doi.org/10.1016/S1053-4822\(03\)00015-9](https://doi.org/10.1016/S1053-4822(03)00015-9)
- Störmer, S., & Fahr, R. (2013). Individual determinants of work attendance: Evidence on the role of personality. *Applied Economics*, 45 (19), 2863-2875. <https://doi.org/10.1080/00036846.2012.684789>
- Tayyeb, S., & Riaz, M. N. (2004). Validation of the three-component model of organizational commitment in Pakistan. *Pakistan Journal of Psychological Research*, 19 (3-4), 123-149.
- van den Heever, A. M. (2021). 3. Social insurance. In Schüring, E., & Loewe, M. (Eds.), *Handbook on social protection systems*. Cheltenham, UK; Northampton, MA: Edward Elgar Publishing, 68-77. <https://doi.org/10.4337/9781839109119.00017>
- Wegge, J., Schmidt, K. H., Parkes, C., & Van Dick, R. (2007). Taking a sickie: Job satisfaction and job involvement as interactive predictors of absenteeism in a public organization. *Journal of occupational and organizational psychology*, 80 (1), 77-89. <https://doi.org/10.1348/096317906x99371>
- World Bank (2024). *Labor force participation rate, total (% of total population ages 15+) (modeled ILO estimate) – Croatia*. Retrieved June 2, 2024, from: <https://data.worldbank.org/indicator/SL.TLF.CACT.ZS?end=2023&locations=HR&start=2018>
- Yang, J. T. (2010). Antecedents and consequences of job satisfaction in the hotel industry. *International Journal of Hospitality Management*, 29 (4), 609-619. <https://doi.org/10.1016/j.ijhm.2009.11.002>
- Ybema, J. F., Smulders, P. G., & Bongers, P. M. (2010). Antecedents and consequences of employee absenteeism: A longitudinal perspective on the role of job satisfaction and burnout. *European journal of work and organizational psychology*, 19 (1), 102-124. <https://doi.org/10.1080/13594320902793691>
- Zhang, W., Sun, H., Woodcock, S. & Anis, A.H. (2017). Valuing productivity loss due to absenteeism: firm-level evidence from a Canadian linked employer-employee survey. *Health economics review*, 7, 1-14. <https://doi.org/10.1186/s13561-016-0138-y>

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9. APPENDIX

9.1 THE LIST OF APPENDED SCIENTIFIC PAPERS AND DOCTORAL CANDIDATES` CONTRIBUTION

Scientific paper 1	Appendix 1
Authors	<i>Čikeš, V., Maškarin Ribarić, H., Črnjar, K.</i>
Title of the paper	The Determinants and Outcomes of Absence Behavior: A Systematic Literature Review
Year of publication	<i>2018</i>
Journal	Social Sciences
ISSN/ISBN number (e-ISSN)	2076-0760
Publisher	Multidisciplinary Digital Publishing Institute
Volume and Issue number	7 (8)
Pages (from-to)	120

Language	English
Indexation	Scopus Q2
Scientific contribution of the paper	This systematic literature review creates an accessible pool of knowledge about the determinants and outcomes of absence behavior, which can be easily replicated due to its adherence to principles of transparency, inclusivity, explanation, and heuristic.
Scientific contribution of the doctoral candidate	Conceiving the idea, thorough content analysis of the included papers, application of systematic literature review in the paper and formulating the conclusions of the conducted research.
Applied contribution of the paper	A better understanding of absenteeism, its determinants and outcomes can use a guide for both theoreticians and practitioners.

Scientific paper 2	Appendix 2
Authors	<i>Čikeš, V., Črnjar, K., Maškarin Ribarić, H.</i>
Title of the paper	Assessing the Economic Impact of Sickness Absence in Croatia Before, During, and After the COVID-19 Crisis: Emphasis on the Hospitality Industry
Year of publication	2024
Journal	Intellectual Economics
ISSN/ISBN number (e-ISSN)	1822-8011 (1822-8038)
Publisher	Mykolas Romeris University
Volume and Issue number	18 (1)
Pages (from-to)	154-176
Language	English
Indexation	Scopus Q2
Scientific contribution of the paper	This study provides empirical evidence supporting the existence of significant differences in sickness absence rates and costs between the hospitality industry and the broader economy, therefore contributing to a better understanding of absenteeism phenomena.
Scientific contribution of the doctoral candidate	A comprehensive analysis of social security systems and absenteeism in the EU, improvement and application of Human

	Capital Approach in calculating the productivity losses caused by sickness absenteeism, and formulation of conclusions of the conducted research.
Applied contribution of the paper	The differences in social security models and sickness benefit schemes across EU countries, reflected in the diverse policy priorities and approaches to managing sickness absence, can provide a valuable comparative framework for policymakers. Additionally, to facilitate better comparisons and improve monitoring systems, standardized methods for measuring, collecting, and expressing sickness absence data – including rates, causes, and costs – could be developed.

Scientific paper 3	Appendix 3
Authors	<i>Čikeš, V., Črnjar, K., Maškarin Ribarić, H.</i>
Title of the paper	Effects of job attitudes on withdrawal behaviors: Evidence from the Croatian hotel industry
Year of publication	2024
Journal	Zbornik radova Ekonomskog fakulteta u Rijeci: časopis za ekonomsku teoriju i praksu/ Proceedings of Rijeka Faculty of Economics: Journal of Economics and Business
ISSN/ISBN number (e-ISSN)	1331-8004 (1846-7520)
Publisher	Faculty of Economics, University of Rijeka
Volume and Issue number	42 (1)
Pages (from-to)	39-64
Language	English
Indexation	Scopus Q3, WOS ESCI
Scientific contribution of the paper	This paper is fulfilling the gap in the international literature and Croatian scientific and professional practice about the relation between organizational commitment and job involvement, and absenteeism, on the example of the hotel industry.

Scientific contribution of the doctoral candidate	Conceiving the idea, creating the survey questionnaire, conducting the research, testing the hypotheses and formulating the conclusions of the conducted research.
Applied contribution of the paper	The results of this paper may be useful to practitioners in a way to manage absenteeism through employees' job attitudes. Some of the practices for doing that can include involving employees in decision-making, offering work-life balance programs, and improving working conditions.

9.2 COPYRIGHT

Scientific paper 1 **The Determinants and Outcomes of Absence Behavior: A Systematic Literature Review** is published as Open Access Paper.

Scientific paper 2 **Assessing the economic impact of sickness absence in Croatia before, during, and after the COVID-19 crisis: Emphasis on the hospitality industry** is published as Open Access Paper.

Scientific paper 3 **Effects of job attitudes on withdrawal behaviors: Evidence from the Croatian hotel industry** is published as Open Access Paper.

9.3 APPENDED SCIENTIFIC PAPER 1: THE DETERMINANTS AND OUTCOMES OF ABSENCE BEHAVIOR: A SYSTEMATIC LITERATURE REVIEW

The Determinants and Outcomes of Absence Behavior: A Systematic Literature Review

Čikeš, V., Maškarin Ribarić, H. & Črnjar, K. (2024)

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Review

The Determinants and Outcomes of Absence Behavior: A Systematic Literature Review

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Abstract: This research aims to identify and analyze the frequency of the researched determinants and outcomes of absenteeism and thus create an extensive pool of knowledge that can be used for further research. A systematic review, based on Tranfield, Denyer, and Smart's guidelines of 2003, was used. An electronic search of the Scopus database led to the inclusion of 388 peer-reviewed research articles. Finally, 100 top-quality articles were analyzed using content analysis. This article provides several starting points for practitioners and researchers when investigating absenteeism and its potential determinants and outcomes. It also shows that there is an evident imbalance between empirical research dealing with determinants and research dealing with absenteeism outcomes. Employee attitudes stand out among the most repetitive absenteeism causes, while turnover, organizational health, and loss of productivity are some of the most researched absenteeism outcomes. Most research takes place in the manufacturing industries, followed by hospitals and other public service organizations, banks, and insurance companies. This systematic literature review is the first known attempt of this kind of review of the causes and consequences of absence behavior. It covers a wide range of literature published from 1969 until today and includes more than 150 different absenteeism determinants and outcomes.

Keywords: absenteeism; determinants; outcomes; systematic literature review

1. Introduction

The human element plays a significant role in any organization. Employees and human resource management are key determinants of service quality, customer satisfaction and loyalty, competitive advantage, organizational performance, and business success (Bitner et al. 1990; Nickson et al. 2002; Schneider et al. 2003). Many theories, models, and empirical studies in the management literature that underline the crucial role of human resources for organizations support this belief.

One of the most important issues that human resource managers are dealing with is managing their staff's absence behavior, i.e., absenteeism. Absenteeism is a temporary absence from work (temporary withdrawal from an organization) for reasons such as illness, death in the family, or other personal issues (Mathis and Jackson 2004). It is also interpreted as an employee's intentional or habitual absence from work (Cucchiella et al. 2014). According to the literature, there are several types of absenteeism. The most common type is sick leave (Duff et al. 2015; Løkke et al. 2006; Pizam and Thornburg 2000), while some authors consider vacation, maternity leave, military duty, education absence, etc. as forms of absenteeism, too. Some authors differentiate involuntary absenteeism (e.g., certified sickness, funeral attendance) and voluntary absenteeism (e.g., vacation, uncertified sickness) (March and Simon 1958). (Gibson 1966; Johns 1978) distinguish between authorized and unauthorized absenteeism, while (Blau 1985) and (Cheloha and Farr 1980) divide absenteeism into organizationally excused and organizationally unexcused categories, with types such as sickness, jury duty, religious

holidays, funeral leave, and transportation problems belonging to the category of excused forms of absence. Absenteeism is relatively easy to measure. There are two kinds of absence metrics: time lost and absence frequency. Time-lost measures express absenteeism as a sum of units of time (e.g., hours or days) away from work (Steel 2003), while absence frequency is the number of absences in a specific period of time regardless of duration (Chadwick-Jones et al. 1971).

Excessive absenteeism can have a serious impact on any company. The seriousness of this impact is the subject of extensive debate. Some of the negative consequences of absenteeism are high costs, such as direct compensation costs or replacement costs, as well as loss of productivity (Mathis and Jackson 2004). The importance of studying absenteeism lies in the fact that a better understanding of absence behavior can lead to its successful management.

To address this issue, the aim of this study is to identify, summarize, and analyze the antecedents and consequences of absenteeism, as well as their relation to absenteeism itself, in the largest database of peer-reviewed literature—Scopus—using a systematic review methodology. This is the first known attempt of a systematic review of the aforementioned subject. A total of 388 articles were reviewed. Accordingly, three research questions were formulated.

- RQ1. What are the most researched determinants and outcomes of accruing employee absence behavior?
- RQ 2. How do the related determinants influence absence behavior?
- RQ 3. What kind of impact can absenteeism have on related outcomes?

The aim of the first research question is to identify the determinants and outcomes of incurring absenteeism as reported in the literature and highlight the most repetitive. The second research question aims to identify a positive or a negative impact of related determinants on absenteeism, while the third research question intends to identify a positive or a negative impact of absenteeism on related outcomes.

The next section gives an overview of the existing literature reviews on absenteeism determinants and/or outcomes. Section 3 explains the systematic review methodology used in this study, with all the inclusion and exclusion criteria. Section 4 summarizes the main results of the study. This is followed by a discussion section, including recommendations for further research. Finally, the conclusions of the study and limitations of this research are presented in Section 6.

2. Theoretical Background

Absence behavior has been intensively researched for more than five decades. The first significant papers on the systematization of absenteeism causes and consequences date back to the 1970s. The approaches to the classification of factors that influence absence behavior, as well as the consequences of absenteeism, differ from one author to another. This chapter offers a short overview of the most significant authors and their review papers which deal with the determinants and outcomes of absenteeism.

In the 1970s, (Muchinsky 1977) conducted a narrative review of the relationship between absenteeism and personal, attitudinal, and organizational variables. Other than these absenteeism determinants, he researched the relationship between absenteeism and turnover, which represent two of the most important withdrawal behaviors in any organization. Muchinsky also examined absenteeism from several perspectives, including the psychometric problems of measurement, as well as efforts to deal with this phenomenon at a very practical level, including possible solutions for the reduction of employee absenteeism.

(Rhodes and Steers 1981) developed an all-inclusive model of absenteeism that consisted of 8 factor groups which have a possible effect on employee absenteeism: Job situation, Personal characteristics, Pressures to attend, Job satisfaction, Employee Values and Job Expectations, Attendance Motivation, Ability to Attend, and finally, Employee Attendance.

While Muchinsky and Rhodes and Steers mostly dealt with absenteeism determinants, (Goodman and Atkin 1984) went a step further and tried to identify what effect absenteeism has on different

population levels: the individual worker, adjacent workers, the work group, the organization, other social organizations, and society. Among the negative consequences, they pointed out a loss of rewards, disciplinary action, accidents, greater work stress, lower productivity, and higher costs as most important.

In 1985, (Durand 1985) selected several antecedents and consequences of absenteeism and reviewed absenteeism from two perspectives: industrial-organizational psychology and organizational behavior management. His research was focused on influences that are potentially amenable to change. He found that work unit size, worker responsibility, and organizational scheduling are three potential antecedent influences that could be used to improve employee attendance, and that feedback, rewards, and punishments were shown to be effective attendance control procedures.

In the late 1990s, (Harrison and Martocchio 1998) introduced a new time variable in their research of absenteeism causes and its consequences. They used a time-based system to organize and analyze the causes and consequences of absenteeism in the form of a literature review. In that context, they defined personality and demographic characteristics (gender, age, depression, smoking, heavy drinking, drug abuse, and exercise) as long-term causes of absenteeism. Job-related attitudes and social context represented the mid-term group. Variables belonging to this group, such as high levels of job satisfaction, job involvement, organizational commitment, doing meaningful tasks, working in a group or a culture with strict attendance norms, working in a non-union environment (with less paid sick leave), working on the day shift, and working in an organization with flexible scheduling, all contributed to lower absenteeism. Finally, decision-making mechanisms, such as an employee's intentions regarding attendance, belong to a group of short-term causes.

Furthermore, Harrison and Martocchio indicated some variables that affect absenteeism in a positive way. A person who works under attendance incentives, who can somehow avoid acute stressors such as infections, injuries, and injustices, who can discount the utility of non-work behaviors, who enjoys attending work, and who feels social pressure to attend work with no impediments to do so will have lower absenteeism rates.

In the last 10 years, a systematic literature review methodology was applied on two absenteeism-associated studies (Daouk-Öyry et al. 2014; Davey et al. 2009). Both studies were conducted in a hospital setting.

Daouk-Öyry et al. used the PubMed and CINAHL Plus databases, using articles published between 2007 and 2013 in order to examine the antecedent and outcome variables that concern both turnover and absence behavior. In their research, they proposed a multilevel conceptual model called JOINT (Job, Organization, Individual, National and inTerpersonal factors) for the future investigation of absenteeism and turnover among nurses.

The second group of authors (Davey et al. 2009) used a more comprehensive scope of databases (10 of them, including SCOPUS) and a longer period of time (1986–2006). The objective of their research was to identify individual and organizational predictors of the short-term absences of staff nurses reported in the research literature. They reported that the lack of theory about nursing absenteeism was the reason for the inconsistent results found in their review.

Despite of this rather intensive research on the topic in the form of reviews, the characteristics of past research both leave and open up space for new approaches. The existing review papers dealing with absenteeism causes and consequences are mostly of the narrative type. On the other hand, the methodology approach used in this paper—a systematic review—is relatively new and has not been used so far within the area of economics and management, which is a strongly under-research area in this sense. Moreover, a research review for a period of almost 50 years represents one of the additional values of this paper.

3. Methodology

Systematic reviews help to develop a reliable knowledge base for future research in different fields of science. At first, the systematic review was used only in the medical sciences. In 2003, Tranfield,

Denyer, and Smart adjusted the methodology of the systematic review to the management field. Unlike the traditional literature review, a systematic review improves the quality of the review process and outcomes by employing a transparent and reproducible procedure (Tranfield et al. 2003). In order to produce a quality review, scientists should respect the distinct and exacting principles of transparency, inclusivity, explanation, and heuristic (Denyer and Tranfield 2009). According to (Tranfield et al. 2003), a systematic review consists of three steps: (1) a detailed a priori planning of the review, including a precise definition of the aim and research question to be approached in the course of the review; (2) a rigorous execution of the review itself comprising the identification of relevant literature using explicit, reproducible criteria for inclusion and exclusion, which is supported by an appraisal of the quality of the reviewed studies and the strength of their findings; and (3) the reporting and dissemination of the review results. The introductory section explains the aim, the objectives of this review, as well as the research questions (step 1). The selection of the relevant literature (step 2) is presented in the methodological section, while the third step—a synthesis and analytic review of the selected articles and a comprehensive presentation of the results—is presented in the results section.

For the purpose of this study, the Scopus database was chosen as the most relevant source because it is the largest database of peer-reviewed literature. First, a complex keyword search of titles, abstracts and keywords was performed in order to identify studies that focus on the determinants and outcomes of absence behavior. The initial search of the database was undertaken using basic keywords and basic Boolean operators for synonyms: “antecedents” (OR causes, OR determinants, OR predictors), “consequences” (OR outcomes), and “absenteeism” (OR absence behavior). Second, the search was confined to

- document type: article;
- language: English;
- subject area: “Business, Management and Accounting” and “Economics, Econometrics and Finance.”

When these criteria were applied, the initial sample resulted in 388 papers in the period from 1969 to 2018 (26 March).

After the analysis of abstracts and full texts, this sample was narrowed to 124 of the most relevant articles. Articles that refer to school absenteeism, theoretical articles, reviews, and meta-analysis were excluded from further analysis.

The last step was the selection of the best-quality articles. Since paper citations serve as a de facto vote on a given article’s contribution towards knowledge accumulation and development (Saha et al. 2003), the first 100 articles were selected for the next step.

4. Results

This section presents the results of the analysis of the chosen articles. A synthesis of the data started with an analysis of the key design characteristics of each study and the operationalization of the variables involved.

The majority of the selected articles was published over the past 18 years. The distribution of articles by decade was as follows: 1960–1969: 1 article; 1970–1979: 4 articles; 1980–1989: 10 articles; 1990–1999: 27 articles; 2000–2009: 30 articles; 2010–2018: 28 articles.

All 100 articles contain empirical research supported by primary or secondary data. When it comes to study design, both experimental and observational study designs are included. Most of the selected studies used a cross-sectional design (70), 22 of them relied on longitudinal design, 5 were designed as quasi-experimental, and 3 used a mixed-method design.

Data for these studies were collected using different methods. The majority of these studies, 43 of them, used survey questionnaires and organizational databases in combination as their method for data collection. Only databases were relied on in 32 studies, while solely survey questionnaires were used in 20 studies. Other combinations of data collection were also used: database, interview and focus group (1), interview and focus group (1), and interview and survey questionnaire (3).

The majority of the studies was conducted on an individual level and the population consisted of employees. Most research took place among hospital staff, along with manufacturing, government, and bank employees.

The main geographical source of these empirical studies is the United States of America (38 studies), followed by Canada (9) and Australia (8). Three studies among the selected 100 were conducted among a group of countries.

Most of the 100 articles tested multiple variables of either the causes or consequences of absenteeism. 85 articles only tested antecedents, 8 only tested consequences, and 7 tested both. For a comprehensive view, in Section 4.1 absenteeism determinants and the impact of related determinant on absence behavior are described. The positive and negative outcomes of absenteeism are described in Section 4.2. Afterwards, Table 1 presents the summarized results. The table comprises data about the authors sorted into alphabetic order, the year in which each article was published, the article title, study design, study population, citations, types of absenteeism determinant and outcome, and the relation of the article with absenteeism (positive or negative). A negative mark (–) after a related determinant means that the presence of that determinant decreases absenteeism rates. A positive mark (+) means that absenteeism rates are higher if that determinant is present or its value is growing. When it comes to outcomes, a negative mark means that the higher absenteeism, the lower the outcome rates. A positive mark by the outcome stands for an increase in an outcome correlated with the value of absenteeism.

4.1. Determinants of Absenteeism

For the purpose of this article, absence behavior determinants are divided into several categories according to their type: personal, demographic, attitudinal, health-related, organizational, and job determinants.

Among personal factors, conscientiousness, agreeableness and neuroticism are some commonly explored causes of absenteeism (Kolz 1999; Hattrup et al. 1998; Störmer and Fahr 2013). While conscientious and agreeable employees seem to be less absent from work, neuroticism has a positive effect on absence behavior.

Several studies explore age, gender, marital status, the presence of children, race, and ethnicity. While (Garcia 1987) found that age has a positive relationship with absenteeism, (Gellatly 1995), (Gerstenfeld 1969), (Løkke Nielsen 2008), and (Redman et al. 2011) have shown that younger workers are more absent than older ones. Since gender is an important explanatory variable in most absenteeism studies, it is included as an independent variable in all analyses. However, (Vistnes 1997) observed gender as a dependent variable and found that there are some notable differences between the absence behavior of men and women. This study shows a positive correlation between the number of children under the age of six and the likelihood of absence among women. In addition, employees with greater family and personal obligations have a higher frequency of absenteeism (Deery et al. 1995). Married employees are more absent than single ones, and employees belonging to racial or ethnic minorities are absent from work more than their non-minority colleagues (Garcia 1987).

Many authors study attitudes as important determinants of absenteeism in organizations. Job involvement and organizational commitment in interaction show a negative correlation with absence behavior (Blau 1986). The literature on absenteeism suggests that employees might choose to withdraw from an aversive work situation as this makes them dissatisfied. Therefore, it is no surprise that job satisfaction is one of the most researched attitudes (Boon et al. 2014; Yang 2010; Ybema et al. 2010; Cohen and Golan 2007; Steel et al. 2007; Kristensen et al. 2006; Vanden Heuvel 1997; Zaccaro et al. 1991; Rosse and Hulin 1985; Garrison and Muchinsky 1977). In addition, (Wegge et al. 2007) showed that in employees with low job satisfaction the impact of job involvement on absence behavior is much more pronounced than in employees with high job satisfaction.

Table 1. Absenteeism determinants and outcomes.

Authors	Year	Title	Study Design	Study Population	Citations	Determinants and Impact Direction (Negative (-) or Positive (+))	Outcomes
(Ahn et al. 2013)	2013	Construction Workers' Perceptions and Attitudes Toward Social Norms as Predictors of Their Absence Behavior	Cross-sectional	Construction site workers in Michigan, US	12	social controls (-) awareness of company absence rules (-)	
(Arai and Thoursie 2005)	2005	Incentives and Selection in Cyclical Absenteeism	Longitudinal	Private sector establishments in Sweden	40	type of contract (temporary) (-)	
(Austrom et al. 1988)	1988	The Single Worker: An Empirical Exploration of Attitudes, Behavior, and Well-Being	Cross-sectional	Working population, English-speaking adults in Toronto, Canada	3	contemporary single persons (not married) (-)	
(Avery et al. 2012)	2012	Is Relational Demography Relative? How Employment Status Influences Effects of Supervisor-Subordinate Demographic Similarity	Cross-sectional	Civilians, wage-earning employees in US	11	racioethnic similarity with the supervisor (mediating effect of employment status (part-time job)) (-) gender similarity with the supervisor (mediating effect of employment status (part-time job)) (-)	
(Bamberger and Biron 2007)	2007	Group Norms and Excessive Absenteeism: The Role of Peer Referent Others	Cross-sectional	Production workers employed (for at least a year) at a food manufacturing enterprise in Israel	61	permissive referent group absence norms (+)	
(Barbary et al. 2001)	2001	Contracted Workdays and Absence	Cross-sectional	Employees in manufacturing firm operating production lines in UK	13	contracted workdays (-)	
(Bentley et al. 2012)	2012	Perceptions of Workplace Bullying in the New Zealand Travel Industry: Prevalence and Management Strategies	Cross-sectional	Employees in retail and business travel agencies and travel wholesale companies in New Zealand	15	workplace bullying (+)	
(Blau 1986)	1986	Job Involvement and Organizational Commitment as Interactive Predictors of Tardiness and Absenteeism	Cross-sectional	Staff nurses working in a hospital in the US	89	work related attitudes; job involvement and organizational commitment in interaction (-)	
(Bolin and Heatherly 2001)	2001	Predictors of Employee Deviance: The Relationship Between Bad Attitudes and Bad Behavior	Cross-sectional	Entry-level restaurant, supermarket and grocery store employees	40	attitude variables (theft approval, intent to quit, and dissatisfaction) (+)	

Table 1. *Cont.*

Authors	Year	Title	Study Design	Study Population	Citations	Determinants and Impact Direction (Negative (-) or Positive (+))	Outcomes
(Boon et al. 2014)	2014	Perceived Human Resource Management Practices: Their Effect on Employee Absenteeism and Time Allocation at Work	Cross-sectional	Employees of the governmental organization in Netherlands	5	job satisfaction (-) employee perception of HRM practices (perceptions of the employment relation bundle) (-) HRM practices (people flow, appraisal and reward, employment relation bundle: mediated through job satisfaction) (-)	
(Brooke and Price 1989)	1989	The Determinants of Employee Absenteeism: An Empirical Test of a Causal Model	Cross-sectional	Full-time employees in Veterans Administration medical centre in the US	125	kinship responsibility; organizational permissiveness; role ambiguity and alcohol involvement (+) centralization, pay and job satisfaction (-) overtime bans (+) gender (female) (+) age (youngest and oldest) (+) previous absence (+) full-time contract (-) wage (-)	
(Brown 1999)	1999	Worker Absenteeism and Overtime Bans	Longitudinal	Employees of a manufacturing company in Great Britain	8		
(Butler et al. 1998)	1998	More Than Cost Shifting: Moral Hazard Lowers Productivity	Longitudinal	Manufacturing industries in the US	11	medical costs (price of health care) (+)	
(Byron and Peterson 2002)	2002	The Impact of a Large-Scale Traumatic Event on Individual and Organizational Outcomes: Exploring Employee and Company Reactions to 11 September 2001	Cross-sectional	Full-time employment MPA and MBA students in the US	40	strain from an acute-extraorganizational stressor (-)	
(Carmeli et al. 2007)	2007	Considerations in Organizational Career Advancement: What Really Matters	Cross-sectional	Employees working in both service and non-service organizations, operating in the communication, electronics, banking, insurance, car providers, software, and advertisement industries in Israel	17		career mobility (+)
(Chullen et al. 2010)	2010	Minimizing Deviant Behavior in Healthcare Organizations: The Effects of Supportive Leadership and Job Design	Cross-sectional	Employees of a healthcare organization in the US	12	perceived organizational support and intrinsic motivation (-)	

Table 1. Cont.

Authors	Year	Title	Study Design	Study Population	Citations	Determinants and Impact Direction (Negative (-) or Positive (+))	Outcomes
(Chung and Schneider 2002)	2002	Serving Multiple Masters: Role Conflict Experienced by Service Employees	Cross-sectional	Telephone service employees in an insurance company in the US	79	role conflict (+)	
(Cohen 1998)	1998	An Examination of the Relationship Between Work Commitment and Work Outcomes Among Hospital Nurses	Cross-sectional	Hospital nurses in Canada	36	job involvement (-)	
(Cohen and Golan 2007)	2007	Predicting Absenteeism and Turnover Intentions by Past Absenteeism and Work Attitudes: An Empirical Examination of Female Employees in Long-Term Nursing Care Facilities	Cross-sectional	Employees of long term nursing care facilities in Israel	44	prior absenteeism (+) job satisfaction (-)	
(Colquitt et al. 2002)	2002	Justice in Teams: Antecedents and Consequences of Procedural Justice Climate	Cross-sectional	Employees working in teams in automobile parts manufacturing firm in the US	322	climate level (i.e., the average procedural justice perception within the team) (-)	
(Cornelissen et al. 2013)	2013	Fairness Spillovers-The Case of Taxation	Longitudinal	Households in Germany	5	self-perceived level of well-being (-) perceived unfairness in taxing the rich (-) tenure (+) firm size (+)	
(Dasgupta et al. 2012)	2012	Impact of Managerial Communication Styles on Employees' Attitudes and Behaviours	Cross-sectional	Full-time employees in manufacturing organisations in India	11	emotional bond with organizations (-)	
(De-Boer et al. 2002)	2002	Unfairness at Work as a Predictor of Absenteeism	Cross-sectional	Male employees in a security firm in Belgium	101	distributive unfairness (+) procedural unfairness (under the mediating effect of affective commitment) (+)	

Table 1. Cont.

Authors	Year	Title	Study Design	Study Population	Citations	Determinants and Impact Direction (Negative (-) or Positive (+))	Outcomes
(Deery et al. 1995)	1995	The Determinants of Absenteeism: Evidence from Australian Blue-Collar Employees	Cross-sectional	Employees in a motor-vehicle company in Australia	10	job motivation (-) external responsibilities (greater family and personal obligations) (+) routinization (mediated through job motivation) (+) absence culture (mediated through job motivation) (-) supervisory support (mediated through job motivation) (-) previous disciplinary warnings (-) accumulation of sick pay (-)	
(Deery and Iverson 2005)	2005	Labor-Management Cooperation: Antecedents and Impact on Organizational Performance	Longitudinal	International bank employees in Australia	56	union loyalty (-)	
(Deery et al. 2014)	2014	Can Union Voice Make a Difference? The Effect of Union Citizenship Behavior on Employee Absence	Longitudinal	International bank employees in Australia	4	union citizenship behavior (helping fellow members with workplace grievances) (-)	
(Dehue et al. 2012)	2012	Coping with Bullying at Work and Health Related Problems	Cross-sectional	Residents who work at least eight hours a week in any organization in the Netherlands where they have both colleagues and a manager	20	bullying (+)	
(Diestel and Schmidt 2012)	2012	Lagged Mediator Effects of Self-Control Demands on Psychological Strain and Absenteeism	Longitudinal	Employees in a health insurance company and a financial service institution in Germany	20	workload (mediated through self-control demands) (+)	
(Dionne and Dostie 2007)	2007	New Evidence on the Determinants of Absenteeism Using Linked Employer-Employee Data	Longitudinal	Establishments and their workers in Canada	48	work arrangements standard weekday work hours work-at-home options, and reduced work weeks (-) shift work and compressed work weeks (+)	
(Drakopoulos and Grimani 2013)	2013	Injury-Related Absenteeism and Job Satisfaction: Insights from Greek and UK Data	Cross-sectional	Individuals in Greece and the UK	3	job satisfaction (-)	

Table 1. Cont.

Authors	Year	Title	Study Design	Study Population	Citations	Determinants and Impact Direction (Negative (−) or Positive (+))	Outcomes
(Farrell and Petersen 1984)	1984	Commitment, Absenteeism, and Turnover of New Employees: A Longitudinal Study	Longitudinal	Nurses and accountants in the US	31	commitment (−)	turnover (+)
(Festing et al. 1999)	1999	Financial Participation in Europe—Determinants and Outcomes	Cross-sectional	HMR managers	31	profit sharing (−)	
(Frick and Maio 2008)	2008	Labor Market Institutions and Individual Absenteeism in the European Union: The Relative Importance of Sick-leave Benefit Systems and Employment Protection Legislation	Cross-sectional	Employees and self-employed	30	sickness benefits (+)	
(Frooman et al. 2012)	2012	Transformational and Passive Avoidant Leadership as Determinants of Absenteeism	Cross-sectional	Establishments and their workers in Canada	3	to illegitimate: transformational leadership (−) passive avoidant leadership (+) to legitimate: passive avoidant leadership (−)	
(Fugate et al. 2012)	2012	Managing Employee Withdrawal During Organizational Change: The Role of Threat Appraisal	Cross-sectional	Individuals in Greece and the UK	48	threat appraisals (+)	
(Garcia 1987)	1987	Sick-Time Usage by Management and Professional Employees in the Public Sector	Cross-sectional	Nurses and accountants in the US	6	age (+) gender (woman) (+) race and ethnic (minorities) (+) education (−) marital status (+) tenure (−) job level (−) contact arrangements (flex-time and compressed work weeks vs. fixed schedule) (+)	

Table 1. Cont.

Authors	Year	Title	Study Design	Study Population	Citations	Determinants and Impact Direction (Negative (-) or Positive (+))	Outcomes
(Carrison and Muchinsky 1977)	1977	Attitudinal and Biographical Predictors of Incidental Absenteeism	Cross-sectional	Accounting department employees in the US	20	for unpaid absence: satisfaction with work (-) overall job satisfaction (-) age (-) tenure (-) for paid absence: age (+) tenure (+)	
(Gellatly 1995)	1995	Individual and Group Determinants of Employee Absenteeism: Test of a Causal Model	Cross-sectional	Nursing and food services employees in a mid-size chronic care hospital in Canada	121	individual and group-level factors: tenure (+) age (-) affective commitment (-) continuous commitment (+) interactional justice (supervisor) (-) perceived absence norm (+)	employees' normative perceptions (influenced by their prior personal absence and by the average level of absence within both their immediate work group and the absence culture to which they belonged)
(Gellatly and Luchak 1998)	1998	Personal and Organizational Determinants of Perceived Absence Norms	Cross-sectional	Hospital employees in Canada	6	perceived absence norms (to future absence) (+)	
(Gerstemeier 1969)	1969	Employee Absenteeism: New Insights: Data Reveal External Factors	Cross-sectional	Laundry and drycleaning industry employees in the US	5	fairness of the immediate supervisor (-) working conditions (-) age (-) child care (-)	
(Goldberg and Waldman 2000)	2000	Modelling Employee Absenteeism: Testing Alternative Measures and Mediated Effects Based on Job Satisfaction	Cross-sectional	Hospital employees in the US	45	job satisfaction (unrelated to absenteeism) wage (-) health (-)	

Table 1. Cont.

Authors	Year	Title	Study Design	Study Population	Citations	Determinants and Impact Direction (Negative (-) or Positive (+))	Outcomes
(Hassan et al. 2014)	2014	Does Ethical Leadership Matter in Government? Effects on Organizational Commitment, Absenteeism, and Willingness to Report Ethical Problems	Cross-sectional	Employees of a state government agency in the US	20	ethical leadership (-)	organizational citizenship behavior
(Hattrup et al. 1998)	1998	Prediction of Multidimensional Criteria: Distinguishing Task and Contextual Performance	Cross-sectional	Entry-level customer service and sales representatives from several stores of a retail chain in Mexico	62	conscientiousness (-)	organizational citizenship behavior
(Hausknecht et al. 2008)	2008	Work-Unit Absenteeism: Effects of Satisfaction, Commitment, Labor Market Conditions, and Time	Longitudinal	Employees in a State department of transportation in the US	59	shared (group) job satisfaction and organizational commitment in interactions (-) unit-level job satisfaction and organizational commitment (-)	organizational citizenship behavior
(Hemingsway and Smith 1999)	1999	Organizational Climate and Occupational Stressors as Predictors of Withdrawal Behaviours and Injuries in Nurses	Cross-sectional	Hospital nurses in Canada	136	Organizational climate dimensions (have no effect on absenteeism)	organizational citizenship behavior
(Herrmann and Rockoff 2012)	2012	Worker Absence and Productivity: Evidence from Teaching	Cross-sectional	Teachers in the US	14		productivity (-)
(Ichino and Riphahn 2005)	2005	The Effect of Employment Protection on Worker Effort: Absenteeism During and After Probation	Longitudinal	Bank employees in Italy	122	employment protection (-)	productivity (-)
(Ivanecvich 1986)	1986	Life Events and Hassles as Predictors of Health Symptoms, Job Performance, and Absenteeism	Cross-sectional	Assembly line employees from a medium-sized non-union manufacturing corporation in the US	46	hassel daily uplifts (-)	productivity (-)
(Iverson and Buttigieg 1999)	1999	Affective, Normative and Continuance Commitment: Can the 'Right Kind' of Commitment Be Managed?	Cross-sectional	Fire fighting and rescue service employees in Australia	135	affective and normative commitment (-)	productivity (-)
(Iverson et al. 1998)	1998	Affectivity, Organizational Stressors, and Absenteeism: A Causal Model of Burnout and Its Consequences	Cross-sectional	Public hospital employees	160	high role stress (+) high personal accomplishment, workload, peer support, co-worker support, personal affectivity, autonomy and supervisory support (-)	productivity (-)

Table 1. Contd.

Authors	Year	Title	Study Design	Study Population	Citations	Determinants and Impact Direction (Negative (-) or Positive (+))	Outcomes
(Johnson and O'Leary-Kelly 2003)	2003	The Effects of Psychological Contract Breach and Organizational Cynicism: Not All Social Exchange Violations are Created Equal	Cross-sectional	Bank employees in the US	221	psychological contract breach (+)	
(Johnson et al. 2014)	2014	Outcomes of Absence Control Initiatives: A Quasi-Experimental Investigation into the Effects of Policy and Perceptions	Quasi-experimental (pre-test-post-test without control group)	Employees in two plants of a large unionized automobile parts manufacturer in the US	5	absence policy change (-) (for casual absence) (+) (for family and medical leave act absence)	
(Jones et al. 2009)	2009	Comparative Effects of Race/Ethnicity and Employee Engagement on Withdrawal Behavior	Cross-sectional	Employees in the US	13	employee engagement (-)	
(Judge and Martocchio 1996)	1996	Dispositional Influences on Absenteeism	Mixed method	University employees in the US	23	personal illness (+) presence of kinship responsibilities (+)	
(Iung and Takeuchi 2010)	2010	Performance Implications for the Relationships among Top Management Leadership, Organizational Culture, and Appraisal Practice: Testing Two Theory-Based Models of Organizational Learning Theory in Japan	Cross-sectional	SMEs in the manufacturing sector in Japan	12	supportive leadership (-)	workforce productivity (-)
(Kim and Garman 2003)	2003	Financial Stress and Absenteeism: An Empirically Derived Model	Quasi-experimental (pre-test-post-test without control group)	White-collar workers of an insurance company in the US	23	financial stress (+)	
(Kolz 1999)	1999	Personality Predictors of Retail Employee Theft and Counterproductive Behavior	Quasi-experimental	Employees working for a women's apparel retailer with several stores in the New York City area in the US	13	personality: conscientiousness, agreeableness	
(Kopelman and Schneller 1981)	1981	A Mixed-Consequence System for Reducing Overtime and Unscheduled Absences	Quasi-experimental (pre-test-post-test without control group)	Employees of a 220-bed proprietary medical center in the US	15	mixed consequence control system (punishment and rewards) (-)	operational efficiency (-)

Table 1. Cont.

Authors	Year	Title	Study Design	Study Population	Citations	Determinants and Impact Direction (Negative (-) or Positive (+))	Outcomes
(Krausz et al. 1998)	1998	Distal and Proximal Influences on Turnover Intentions and Satisfaction: Support for a Withdrawal Progression Theory	Quasi-experimental (pre-test without control group)	Non-academic employees of a large academic institution in Israel	20		satisfaction (-) intention to leave (+)
(Kristensen et al. 2006)	2006	Determinants of Absenteeism in a Large Danish Bank	Cross-sectional	The study is based on information from approx. 7,000 employees in 500 different bank units in Denmark	18	job satisfaction (-)	
(Landeweerd and Boumans 1994)	1994	The Effect of Work Dimensions and Need for Autonomy on Nurses' Work Satisfaction and Health	Cross-sectional	Nurses in 16 randomly chosen hospitals in the Netherlands	80	preference to autonomy (moderating effect of the presence of autonomy) (-) traditional task-oriented nursing care system (moderating effect of the preference for autonomy) (+)	
(Lesmowska et al. 2014)	2014	Costs of Diabetes and Its Complications in Poland	Cross-sectional	Data acquired from the National Health Fund (NFZ), ZUS (Social Insurance Institution), and from GUS (Poland's Central Statistical Office) in Poland	14	diabetes mellitus (dm) (-)	
(Løkke Nielsen 2008)	2008	Determinants of Absenteeism in Public Organizations: A Unit-Level Analysis of Work Absence in a Large Danish Municipality	Cross-sectional	Data from approximately 5,000 employees in 400 departments of day-care centres in Denmark	12	age (-) deputy head gender (woman) (-) deputy head's absence (+)	
(Mason and Griffin 2003)	2003	Group Absenteeism and Positive Affective Tone: A Longitudinal Study	Longitudinal	State government agency employees in Australia	46	positive affective tone (-)	organizational health (employee morale, stress level, quality communication processes, satisfaction) (-)
(Mchugh 2002)	2002	The Absence Bug: A Treatable Viral Infection?	Cross-sectional	Employees in local government organisations in Ireland	10		
(Morrow et al. 1999)	1999	Using Absenteeism and Performance to Predict Employee Turnover: Early Detection Through Company Records	Cross-sectional	Data from the personal files of life insurance company employees in the US	24		voluntary turnover (+)

Table 1. Cont.

Authors	Year	Title	Study Design	Study Population	Citations	Determinants and Impact Direction (Negative (-) or Positive (+))	Outcomes
(Moscarola et al. 2016)	2016	Absenteeism, Childcare and the Effectiveness of Pension Reforms	Cross-sectional	Women registered in the private-sector employees' scheme in Italy	3	governmental postponement of retirement and poor supply of childcare services (-)	quality and output (-)
(Mukhopadhyay et al. 1997)	1997	Information Technology Impact on Process Output and Quality	Cross-sectional	Data from 46 mail processing centres in the US	142		
(Nguyen et al. 2016)	2016	When the Going Gets Tough, the Tough Keep Working: Impact of Emotional Labor on Absenteeism	Cross-sectional	Public hospital nurses in Australia	5	emotional labor: surface acting (+)	
(Nicholson et al. 1978)	1978	Shiftwork and Absence: An Analysis of Temporal Trends	Cross-sectional	250 male maintenance engineers attached to several production and ancillary departments of a large steelworks in the UK	18	shiftwork: shift-turn, days of the week, position in the shift cycle	
(Orpen 1979)	1979	The Effects of Job Enrichment on Employee Satisfaction, Motivation, Involvement, and Performance: A Field Experiment	Quasi-experimental (pre-test-post-test with control group)	Local government agency employees in South Africa	66	job enrichment (-)	
(Parasuraman 1982)	1982	Predicting Turnover Intentions and Turnover Behavior: A Multivariate Analysis	Cross-sectional	Non-supervisory plant workers in a medium-sized food processing company in the US	94		turnover (+)
(Pizam and Thornburg 2000)	2000	Absenteeism and Voluntary Turnover in Central Florida Hotels: A Pilot Study	Cross-sectional	Hotel human resources managers in the US	51	work-related factors: morale, satisfaction with compensation and benefits, fulfilment of job expectations, level of pay, and training (-) personal characteristics: parenthood status (+)	
(Price 1998)	1998	Estimation of Causal Model of Absenteeism	Cross-sectional	Hospital employees in the US	6	kinship responsibility, organizational permissiveness, pay and supervisory support	
(Punnett et al. 2007)	2007	Job Attitudes and Absenteeism: A Study in the English Speaking Caribbean	Cross-sectional	Employees in 5 manufacturing companies in Barbados	27	employees' levels of satisfaction with co-workers, activity, responsibility, and job security, loyalty to the organization	

Table 1. Cont.

Authors	Year	Title	Study Design	Study Population	Citations	Determinants and Impact Direction (Negative (-) or Positive (+))	Outcomes
(Qin and Jiang 2011)	2011	The Impact of Natural Disaster on Absenteeism, Job Satisfaction, and Job Performance of Survival Employees: An Empirical Study of the Survivors in Wenchuan Earthquake	Mixed method	Survival employees of earthquake-affected enterprises in China	4	earthquake (-)	
(Redman et al. 2011)	2011	Working Here Makes Me Sick! The Consequences of Sick-Building Syndrome	Cross-sectional	Police officers working in air-conditioned buildings in the Caribbean region	6	sick building syndrome (+) age (-)	
(Remtsch and Steel 1998)	1998	Testing the Durability of Job Characteristics as Predictors of Absenteeism Over a Six-Year Period	Longitudinal	Civilian employees from a large military organization in the US	49	individual job characteristics: skill variety, task identity, autonomy (-)	
(Reed and Fevang 2007)	2007	Organizational Change, Absenteeism, and Welfare Dependency	Longitudinal	Nurses in Norway employed by a municipality or county who did not receive any form of public income support by the end of October 1992 and who were below 55 years of age at that time	31	downsizing processes (+)	
(Resse and Hulin 1985)	1985	Adaptation to Work: An Analysis of Employee Health, Withdrawal, and Change	Longitudinal	Hospital employees in the US	100	job satisfaction (-)	
(Saxton et al. 1991)	1991	Antecedents and Consequences of Emotional Exhaustion in the Airline Reservations Service Sector	Cross-sectional	Employees in the reservation department of an airline company in the US	37	emotional exhaustion (+)	
(Scoppa 2010)	2010	Worker Absenteeism and Incentives: Evidence from Italy	Cross-sectional	Data from the Bank of Italy Household Survey of about 8,000 households in Italy	11	type of employment (self-employed workers vs. employees) public employees vs. private size of the firm (+) threat of unemployment (-) type of contract (temporary contract vs. permanent) tenure (+)	
(Somers 1995)	1995	Organizational Commitment, Turnover and Absenteeism: An Examination of Direct and Interaction Effects	Cross-sectional	Nurses in an urban hospital in the US	233	affective commitment (-) continuance commitment and affective commitment (-)	

Table 1. Cont.

Authors	Year	Title	Study Design	Study Population	Citations	Determinants and Impact Direction (Negative (-) or Positive (+))	Outcomes
(Steel et al. 2007)	2007	Timeframes and Absence Frameworks: A Test of Steers and Rhodes' (1978) Model of Attendance	Longitudinal	Federal civil service employees in the US	9	job satisfaction (-)	
(Störmer and Fahr 2013)	2013	Individual Determinants of Work Attendance: Evidence on the Role of Personality	Longitudinal	Data from the wages of 2004 to 2006 from the German Socio-Economic Panel	5	conscientiousness (-) agreeableness (-) neuroticism (+)	for uncertified absence: job satisfaction, training achievement, and supervisor-rated performance and attendance (-)
(Tharenou 1993)	1993	A Test of Reciprocal Causality for Absenteeism	Longitudinal	Electrical apprentices in Australia	60	for uncertified absence: supervisory style (-)	
(Theorell et al. 1994)	1994	'Person Under Train' Incidents from the Subway Driver's Point of View-A Prospective 1-Year Follow-Up Study: The Design, and Medical and Psychiatric Data	Mixed method	Subway drivers in Sweden	27	injury (+)	
(Torre et al. 2015)	2015	Internal and External Equity in Compensation Systems, Organizational Absenteeism and the Role of Explained Inequalities	Cross-sectional	Data from an annual labour-market survey conducted by the General Confederation of Italian Industry in 2009 in Italy	4	internal pay equity (-) external pay equity (-) (higher at blue-collar workers)	
(Vanden Heuvel 1997)	1997	Absence Because Of Family Responsibilities: An Examination of Explanatory Factors	Cross-sectional	Employee data collected for the 1992 Australian Dependent Care Study by the Australian Institute of Family Studies in Australia	18	job satisfaction (only for men) (-) workplace flexibility (only for women) (-) child care arrangements (pre-schooler parents) (-) presence of dependent children (-)	
(Vistras 1997)	1997	Gender Differences in Days Lost from Work Due to Illness	Cross-sectional	Data from the household component of the 1987 National Medical Expenditure Study in the US	82	health status (self-reported health status, medical events) (both genders) (+) economic variables (presence of sick leave, private insurance, family income (-) for women) presence of children under age six (woman) (+)	

Table 1. Cont.

Authors	Year	Title	Study Design	Study Population	Citations	Determinants and Impact Direction (Negative (-) or Positive (+))	Outcomes
(Wagar 2001)	2001	Consequences of Work Force Reduction: Some Employer and Union Evidence	Cross-sectional	Employer and union respondents in Canada	12	workforce reduction (+)	
(Waters and Roach 1979)	1979	Job Satisfaction, Behavioral Intention, and Absenteeism as Predictors of Turnover	Longitudinal	Female clerical employees in one section of a regional office of an insurance company in the US	27		turnover (+)
(Wegge et al. 2007)	2007	'Taking A Sickie': Job Satisfaction and Job Involvement as Interactive Predictors of Absenteeism in a Public Organization	Cross-sectional	Employees in a civil service organization of a federal state in Germany	67	job involvement and job satisfaction in interactions	
(Weiner 1980)	1980	Determinants and Behavioral Consequences of Pay Satisfaction: A Comparison of Two Models	Cross-sectional	Employees in a medium-sized (350 employees) public-service organization	56	pay satisfaction (-)	
(Winkelmann 1999)	1999	Wages, Firm Size and Absenteeism	Longitudinal	Data on German workers for 1985–1988 from the German Socio-Economic Panel	29	firm size (mediated with wage) (+)	
(Yang 2010)	2010	Antecedents and Consequences of Job Satisfaction in the Hotel Industry	Cross-sectional	Frontline employees in international tourist hotels in Taiwan	75	job satisfaction (-) organizational commitment (-)	
(Ybema et al. 2010)	2010	Antecedents and Consequences of Employee Absenteeism: A Longitudinal Perspective on the Role of Job Satisfaction and Burnout	Longitudinal	Employee data from a cohort study (Study on Musculoskeletal disorders, Absenteeism, Stress and Health) in the Netherlands	55	job satisfaction (-) burnout (+)	job satisfaction (+) future absence (+)
(Zaccaro et al. 1991)	1991	Prior Absenteeism, Supervisory Style, Job Satisfaction, and Personal Characteristics: An Investigation of Some Mediated and Moderated Linkages to Work Absenteeism	Cross-sectional	Non-managerial employees of a chemical manufacturing company in the US	37	prior absence (+) job satisfaction (-) gender (woman) (+)	
(Zeytinoglu et al. 2004)	2004	Part-Time and Casual Work in Retail Trade: Stress and Other Factors Affecting the Workplace	Cross-sectional	Occupational health and safety representatives and workers in retail trade in Canada	34	part-time, casual work, stress (characteristics of and working conditions) (+)	working contract (flexible) (+) interpersonal relations at work: having good friends at work (+); feeling at home at work (-) family domain stressors: having children, caring for a sick or disabled adult and being married (+)
(Zuba and Schneider 2013)	2013	What Helps Working Informal Caregivers? The Role of Workplace Characteristics in Balancing Work and Adult-Care Responsibilities	Cross-sectional	Workplace-related variables in the fourth European Working Condition Survey	11		

Source: the authors' research.

Among the health factors that influence an employee's absence behavior, stress seems to be the most important one (Zeytinoglu et al. 2004; Kim and Garman 2003; Iverson et al. 1998).

Research shows that there is a relationship between absenteeism and many organizational and job characteristics. When it comes to firm size, larger firms seem to have higher absence rates (Scoppa 2010). Even when mediated with wages, this difference is bigger (Winkelmann 1999). Self-employed workers are less absent than workers employed by others; public workers are more absent than private workers; workers on a temporary contract are less absent than workers who have a permanent contract (Scoppa 2010). Employees with a five-day work week have smaller absence rates than employees who work four days a week (Barmby et al. 2001). Shift-turn (mornings, afternoons, and nights), days of the week (Sunday to Saturday), and position in the shift cycle (start, middle, and end cycle) also affect absenteeism (Nicholson et al. 1978).

Absence controls can have a significant effect on absence behavior (Kopelman and Schneller 1981). Improving an absence policy by introducing a punishment and reward system in the organization will reduce casual absences but also increase Family and Medical Leave Act (FMLA) absences (Johnson et al. 2014). The FMLA covers an absence caused by the birth of a child, care for a newborn or adopted child, care for an employee's spouse, child, or parent who has a serious health condition, etc.

4.2. Outcomes of Absenteeism

Absenteeism lowers process quality and output (Morrow et al. 1999) as well as a firm's operational efficiency (Kopelman and Schneller 1981).

Absenteeism affects other withdrawal behaviors, such as turnover. Some articles show a strong positive relationship between absenteeism and turnover (Morrow et al. 1999; Farrell and Petersen 1984; Waters and Roach 1979), while the data from (Parasuraman 1982) indicate a lagged effect between prior absenteeism and turnover.

Besides the above, the presence of absence behavior seems to aggravate overall organizational health; employees in such organizations have lower morale, high levels of stress, poor communication, and the relationships between management and staff are poor (Mchugh 2002).

Additionally, absenteeism has a negative impact on organization productivity (Herrmann and Rockoff 2012; Jung and Takeuchi 2010). The expected loss in daily productivity from employing a temporary substitute is on par with replacing a regular worker of average productivity with one at the 10th–20th percentile of productivity (Herrmann and Rockoff 2012).

5. Discussion

In accordance with previous research, this literature review shows that absenteeism can be caused by many personal, demographic, attitudinal, health-related, organizational, and job determinants. When considering the time dimension as defined by (Harrison and Martocchio 1998), most of the studies are dealing with long-term and mid-term causes of absenteeism, such as gender, age, family obligations and job-related attitudes.

In relation to the research questions, this literature review shows that what stand out the most as the most repetitive absenteeism causes are job satisfaction (18 times), organizational commitment (11), age (7), pay satisfaction (5), job involvement (3), and wages (3). Out of these six most-mentioned causes of absenteeism, four of them (job satisfaction, organizational commitment, pay satisfaction, and job involvement) belong to employees' attitudes. This is not a surprise since employees' attitudes in general represent one of the most researched topics of organizational behavior in general as well. This indicates that an additional, separate literature review could be performed focusing solely (separately) on employees' attitudes as predictors of absenteeism.

This research also showed that there is an evident imbalance between empirical research dealing with absenteeism determinants and research dealing with its outcomes. In the majority of research, absenteeism outcomes have negative implications: e.g., absence behavior lowers productivity, satisfaction, organizational health, outputs, and quality, while it increases turnover and costs,

which is in line with (Goodman and Atkin 1984) conclusions. The measurement and management of absenteeism outcomes are issues of exceptional importance for every organization, not only in regard to additional costs, incurred either for the employer or for society (systems of social/health insurance, i.e., sickness benefits), but also in regard to an organization's development and sustainability.

The distribution of the publishing times of articles selected for this research, i.e., the fact that two-thirds of the analyzed articles were published in the last 20 years, shows that interest in this topic is constantly growing. The analysis also indicates a disparity in the number of articles and the industries in which this research takes place: most research deals with absenteeism in manufacturing industries, followed by hospitals and public service organizations, and then banks and insurance companies. On the other hand, some industries are strongly under-researched (e.g., tourism or the hospitality industry). This surely opens up a potentially interesting research area where it is to be expected that, due to its high labor intensity, the connections between absenteeism behavior and its causes and consequences would be easier to detect and measure.

6. Conclusions

Absenteeism is a crucial issue for human resource management. The understanding of absence behavior starts with an understanding of its determinants and outcomes. This article summarizes some of the possible causes and consequences of absenteeism as found in the articles of the Scopus database for a 49-year period by using the methodology of a systematic literature review. This kind of approach to the literature review has enabled the creation of an accessible pool of knowledge about the determinants and outcomes of absence behavior. It is important to emphasize that this research can be easily replicated because it followed the principles of transparency, inclusivity, explanation, and heurism.

Even though this article provides several starting points for practitioners and researchers when investigating absenteeism and its determinants and outcomes, it is not exempt from limitations: it is limited to the Scopus database, empirical evidence, and the English language. A further extension, including other databases, a review of meta-analyses and/or reviews, as well as articles in other languages, would provide interesting areas for future research.

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References

- Ahn, Seungjun, Sang Hyun Lee, and Robert P. Steel. 2013. Construction Workers' Perceptions and Attitudes toward Social Norms as Predictors of their Absence Behavior. *Journal of Construction Engineering and Management* 140: 1–8. [CrossRef]
- Arai, Mahmood, and Peter Skogman Thoursie. 2005. Incentives and Selection in Cyclical Absenteeism. *Labour Economics* 12: 269–80. [CrossRef]
- Austrom, Douglas R., Timothy T. Baldwin, and Granger J. Macy. 1988. The Single Worker: An Empirical Exploration of Attitudes, Behavior, and Well-Being. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration* 5: 22–29. [CrossRef]
- Avery, Derek R., Sabrina D. Volpone, Patrick F. McKay, Eden B. King, and David C. Wilson. 2012. Is Relational Demography Relative? How Employment Status Influences Effects of Supervisor–subordinate Demographic similarity. *Journal of Business and Psychology* 27: 83–98. [CrossRef]
- Bamberger, Peter, and Michal Biron. 2007. Group Norms and Excessive Absenteeism: The Role of Peer Referent Others. *Organizational Behavior and Human Decision Processes* 103: 179–96. [CrossRef]

- Barmby, Tim, Michael Nolan, and Rainer Winkelmann. 2001. Contracted Workdays and Absence. *The Manchester School* 69: 269–75. [CrossRef]
- Bentley, Tim A., Bevan Catley, Helena Cooper-Thomas, Dianne Gardner, Michael P. O'Driscoll, Alison Dale, and Linda Trenberth. 2012. Perceptions of Workplace Bullying in the New Zealand Travel Industry: Prevalence and Management Strategies. *Tourism Management* 33: 351–60. [CrossRef]
- Bitner, Mary Jo, Bernard H. Booms, and Mary Stanfield Tetreault. 1990. The Service Encounter: Diagnosing Favorable and Unfavorable Incidents. *The Journal of Marketing* 54: 71–84. [CrossRef]
- Blau, Gary J. 1985. Relationship of Extrinsic, Intrinsic, and Demographic Predictors to Various Types of Withdrawal Behaviors. *Journal of Applied Psychology* 70: 442–50. [CrossRef]
- Blau, Gary J. 1986. Job Involvement and Organizational Commitment as Interactive Predictors of Tardiness and Absenteeism. *Journal of Management* 12: 577–84. [CrossRef]
- Bolin, Aaron, and Linette Heatherly. 2001. Predictors of Employee Deviance: The Relationship between Bad Attitudes and Bad Behavior. *Journal of Business and Psychology* 15: 405–18. [CrossRef]
- Boon, Corine, Frank D. Belschak, Deanne N. Den Hartog, and Mark Pijnenburg. 2014. Perceived Human Resource Management Practices. *Journal of Personnel Psychology* 13: 21–33. [CrossRef]
- Brooke, Paul P., and James L. Price. 1989. The Determinants of Employee Absenteeism: An Empirical Test of a Causal Model. *Journal of Occupational and Organizational Psychology* 62: 1–19. [CrossRef]
- Brown, Sarah. 1999. Worker Absenteeism and Overtime Bans. *Applied Economics* 31: 165–74. [CrossRef]
- Butler, Richard J., B. Delworth Gardner, and Harold H. Gardner. 1998. More than Cost Shifting: Moral Hazard Lowers Productivity. *Journal of Risk and Insurance* 65: 671–88. [CrossRef]
- Byron, Kristin, and Suzanne Peterson. 2002. The Impact of a Large-Scale Traumatic Event on Individual and Organizational Outcomes: Exploring Employee and Company Reactions to September 11, 2001. *Journal of Organizational Behavior* 23: 895–910. [CrossRef]
- Carmeli, Abraham, Revital Shalom, and Jacob Weisberg. 2007. Considerations in Organizational Career Advancement: What Really Matters. *Personnel Review* 36: 190–205. [CrossRef]
- Chadwick-Jones, John K., Colin A. Brown, Nigel Nicholson, and C. Sheppard. 1971. Absence Measures: Their Reliability and Stability in an Industrial Setting. *Personnel Psychology* 24: 463–70. [CrossRef]
- Cheloha, Randall S., and James L. Farr. 1980. Absenteeism, Job Involvement, and Job Satisfaction in an Organizational Setting. *Journal of Applied Psychology* 65: 467–73. [CrossRef] [PubMed]
- Chullen, C. Logan, Benjamin B. Dunford, Ingo Angermeier, R. Wayne Boss, and Alan D. Boss. 2010. Minimizing Deviant Behavior in Healthcare Organizations: The Effects of Supportive Leadership and Job Design. *Journal of Healthcare Management* 55: 381–97. [CrossRef] [PubMed]
- Chung, Beth G., and Benjamin Schneider. 2002. Serving Multiple Masters: Role Conflict Experienced by Service Employees. *Journal of Services Marketing* 16: 70–87. [CrossRef]
- Cohen, Aaron. 1998. An Examination of the Relationship between Work Commitment and Work Outcomes among Hospital Nurses. *Scandinavian Journal of Management* 14: 1–17. [CrossRef]
- Cohen, Aaron, and Ronit Golan. 2007. 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* 12: 416–32. [CrossRef]
- Colquitt, Jason A., Raymond A. Noe, and Christine L. Jackson. 2002. Justice in Teams: Antecedents and Consequences of Procedural Justice Climate. *Personnel Psychology* 55: 83–109. [CrossRef]
- Cornelissen, Thomas, Oliver Himmler, and Tobias Koenig. 2013. Fairness Spillovers—The Case of Taxation. *Journal of Economic Behavior & Organization* 90: 164–80. [CrossRef]
- Cucchiella, Federica, Massimo Gastaldi, and Luigi Ranieri. 2014. Managing Absenteeism in the Workplace: The Case of an Italian Multiutility Company. *Procedia-Social and Behavioral Sciences* 150: 1157–66. [CrossRef]
- Daouk-Öyry, Lina, Abdel-Latef Anouze, Farah Otaki, Nuhad Yazbik Dumit, and Ibrahim Osman. 2014. The JOINT Model of Nurse Absenteeism and Turnover: A Systematic Review. *International Journal of Nursing Studies* 51: 93–110. [CrossRef] [PubMed]
- Dasgupta, Shilpee A., Damodar Suar, and Seema Singh. 2012. Impact of Managerial Communication Styles on Employees' Attitudes and Behaviours. *Employee Relations* 35: 173–99. [CrossRef]
- Davey, Mandy M., Greta Cummings, Christine V. Newburn-Cook, and Eliza A. Lo. 2009. Predictors of Nurse Absenteeism in Hospitals: A Systematic Review. *Journal of Nursing Management* 17: 312–30. [CrossRef] [PubMed]

- De Boer, Elpine M., Arnold B. Bakker, Jef E. Syroit, and Wilmar B. Schaufeli. 2002. Unfairness at Work as a Predictor of Absenteeism. *Journal of Organizational Behavior* 23: 181–97. [\[CrossRef\]](#)
- Deery, Stephen J., and Roderick D. Iverson. 2005. Labor-Management Cooperation: Antecedents and Impact on Organizational Performance. *ILR Review* 58: 588–609. [\[CrossRef\]](#)
- Deery, Stephen J., Peter J. Erwin, Roderick D. Iverson, and Margaret L. Ambrose. 1995. The Determinants of Absenteeism: Evidence from Australian Blue-Collar Employees. *International Journal of Human Resource Management* 6: 825–48. [\[CrossRef\]](#)
- Deery, Stephen J., Roderick D. Iverson, Donna M. Buttigieg, and Christopher D. Zatzick. 2014. Can Union Voice Make a Difference? The Effect of Union Citizenship Behavior on Employee Absence. *Human Resource Management* 53: 211–28. [\[CrossRef\]](#)
- Dehue, Francine, Catherine Bolman, Trijntje Völlink, and Mienke Pouwelse. 2012. Coping with Bullying at Work and Health Related Problems. *International Journal of Stress Management* 19: 175–97. [\[CrossRef\]](#)
- Denyer, David, and David Tranfield. 2009. Producing a Systematic Review. In *The SAGE Handbook of Organizational Research Methods*. Edited by David Buchanan and Alan Bryman. London: SAGE Publications Ltd., pp. 671–89.
- Diestel, Stefan, and Klaus-Helmut Schmidt. 2012. Lagged Mediator Effects of Self-Control Demands on Psychological Strain and Absenteeism. *Journal of Occupational and Organizational Psychology* 85: 556–78. [\[CrossRef\]](#)
- Dionne, Georges, and Benoit Dostie. 2007. New Evidence on the Determinants of Absenteeism Using Linked Employer-Employee Data. *ILR Review* 61: 108–20. [\[CrossRef\]](#)
- Drakopoulos, Stavros A., and Katerina Grimani. 2013. Injury-Related Absenteeism and Job Satisfaction: Insights from Greek and UK Data. *The International Journal of Human Resource Management* 24: 3496–511. [\[CrossRef\]](#)
- Duff, Angus J., Mark Podolsky, Michal Biron, and Christopher C. A. Chan. 2015. The Interactive Effect of Team and Manager Absence on Employee Absence: A Multilevel Field Study. *Journal of Occupational and Organizational Psychology* 88: 61–79. [\[CrossRef\]](#)
- Durand, V. Mark. 1985. Employee Absenteeism: A Selective Review of Antecedents and Consequences. *Journal of Organizational Behavior Management* 7: 135–68. [\[CrossRef\]](#)
- Farrell, Dan, and James C. Petersen. 1984. Commitment, Absenteeism, and Turnover of New Employees: A Longitudinal Study. *Human Relations* 37: 681–92. [\[CrossRef\]](#)
- Festing, Marion, Yvonne Groening, Rudiger Kabst, and Wolfgang Weber. 1999. Financial Participation in Europe-Determinants and Outcomes. *Economic and Industrial Democracy* 20: 295–329. [\[CrossRef\]](#)
- Frick, Bernd, and Miguel Á. Malo. 2008. Labor Market Institutions and Individual Absenteeism in the European Union: The Relative Importance of Sickness Benefit Systems and Employment Protection Legislation. *Industrial Relations: A Journal of Economy and Society* 47: 505–29. [\[CrossRef\]](#)
- Frooman, Jeff, Morris B. Mendelson, and J. Kevin Murphy. 2012. Transformational and Passive Avoidant Leadership as Determinants of Absenteeism. *Leadership & Organization Development Journal* 33: 447–63. [\[CrossRef\]](#)
- Fugate, Mel, Gregory E. Prussia, and Angelo J. Kinicki. 2012. Managing Employee Withdrawal during Organizational Change: The Role of Threat Appraisal. *Journal of Management* 38: 890–914. [\[CrossRef\]](#)
- Garcia, Richard L. 1987. Sick-Time Usage by Management and Professional Employees in the Public Sector. *Review of Public Personnel Administration* 7: 45–59. [\[CrossRef\]](#)
- Garrison, Kathleen R., and Paul M. Muchinsky. 1977. Attitudinal and Biographical Predictors of Incidental Absenteeism. *Journal of Vocational Behavior* 10: 221–30. [\[CrossRef\]](#)
- Gellatly, Ian R. 1995. Individual and Group Determinants of Employee Absenteeism: Test of a Causal Model. *Journal of Organizational Behavior* 16: 469–85. [\[CrossRef\]](#)
- Gellatly, Ian R., and Andrew A. Luchak. 1998. Personal and Organizational Determinants of Perceived Absence Norms. *Human Relations* 51: 1085–102. [\[CrossRef\]](#)
- Gerstenfeld, Arthur. 1969. Employee Absenteeism: New Insights: Data Reveal External Factors. *Business Horizons* 12: 51–57. [\[CrossRef\]](#)
- Gibson, R. Oliver. 1966. Toward a Conceptualization of Absence Behavior of Personnel in Organization. *Administrative Science Quarterly* 11: 107–33. [\[CrossRef\]](#)
- Goldberg, Caren B., and David A. Waldman. 2000. Modeling Employee Absenteeism: Testing Alternative Measures and Mediated Effects Based on Job Satisfaction. *Journal of Organizational Behavior* 21: 665–76. [\[CrossRef\]](#)

- Goodman, Paul S., and Robert S. Atkin. 1984. Effects of Absenteeism on Individuals and Organizations. Tepper School of Business. Paper 848. Available online: <http://repository.cmu.edu/tepper/848> (accessed on 5 July 2018).
- Harrison, David A., and Joseph J. Martocchio. 1998. Time for Absenteeism: A 20-Year Review of Origins, Offshoots, and Outcomes. *Journal of Management* 24: 305–50. [CrossRef]
- Hassan, Shahidul, Bradley E. Wright, and Gary Yukl. 2014. Does Ethical Leadership Matter in Government? Effects on Organizational Commitment, Absenteeism, and Willingness to Report Ethical Problems. *Public Administration Review* 74: 333–43. [CrossRef]
- Hattrup, Keith, Matthew S. O'Connell, and Peter H. Wingate. 1998. Prediction of Multidimensional Criteria: Distinguishing Task and Contextual Performance. *Human Performance* 11: 305–19. [CrossRef]
- Hausknecht, John P., Nathan J. Hiller, and Robert J. Vance. 2008. Work-Unit Absenteeism: Effects of Satisfaction, Commitment, Labor Market Conditions, and Time. *Academy of Management Journal* 51: 1223–45. [CrossRef]
- Hemingway, Monica A., and Carla S. Smith. 1999. Organizational Climate and Occupational Stressors as Predictors of Withdrawal Behaviours and Injuries in Nurses. *Journal of Occupational and Organizational Psychology* 72: 285–99. [CrossRef]
- Herrmann, Mariesa A., and Jonah E. Rockoff. 2012. Worker Absence and Productivity: Evidence from Teaching. *Journal of Labor Economics* 30: 749–82. [CrossRef]
- Ichino, Andrea, and Regina T. Riphahn. 2005. The Effect of Employment Protection on Worker Effort: Absenteeism During and After Probation. *Journal of the European Economic Association* 3: 120–43. [CrossRef]
- Ivancevich, John M. 1986. Life Events and Hassles as Predictors of Health Symptoms, Job Performance, and Absenteeism. *Journal of Organizational Behavior* 7: 39–51. [CrossRef]
- Iverson, Roderick D., and Donna M. Buttigieg. 1999. Affective, Normative and Continuance Commitment: Can the 'Right Kind' of Commitment Be Managed? *Journal of Management Studies* 36: 307–33. [CrossRef]
- Iverson, Roderick D., Mara Olekalns, and Peter J. Erwin. 1998. Affectivity, Organizational Stressors, and Absenteeism: A Causal Model of Burnout and Its Consequences. *Journal of Vocational Behavior* 52: 1–23. [CrossRef]
- Johns, Gary. 1978. Attitudinal and Nonattitudinal Predictors of Two Forms of Absence from Work. *Organizational Behavior and Human Performance* 22: 431–44. [CrossRef]
- Johnson, Jonathan L., and Anne M. O'Leary-Kelly. 2003. The Effects of Psychological Contract Breach and Organizational Cynicism: Not All Social Exchange Violations are Created Equal. *Journal of Organizational Behavior* 24: 627–47. [CrossRef]
- Johnson, Michael D., Erica C. Holley, Frederick P. Morgeson, Deborah Labonar, and Adam Stetzer. 2014. Outcomes of Absence Control Initiatives: A Quasi-Experimental Investigation into the Effects of Policy and Perceptions. *Journal of Management* 40: 1075–97. [CrossRef]
- Jones, James R., Jinlan Ni, and David C. Wilson. 2009. Comparative Effects of Race/Ethnicity and Employee Engagement on Withdrawal Behavior. *Journal of Managerial Issues* 21: 195–215.
- Judge, Timothy A., and Joseph J. Martocchio. 1996. Dispositional Influences on Attributions Concerning Absenteeism. *Journal of Management* 22: 837–61. [CrossRef]
- Jung, Yuhee, and Norihiko Takeuchi. 2010. Performance Implications for the Relationships among Top Management Leadership, Organizational Culture, and Appraisal Practice: Testing Two Theory-Based Models of Organizational Learning Theory in Japan. *The International Journal of Human Resource Management* 21: 1931–50. [CrossRef]
- Kim, Jinhee, and E. Thomas Garman. 2003. Financial Stress and Absenteeism: An Empirically Derived Model. *Journal of Financial Counseling and Planning* 14: 31–42.
- Kolz, Arno R. 1999. Personality Predictors of Retail Employee Theft and Counterproductive Behavior. *Journal of Professional Services Marketing* 19: 107–14. [CrossRef]
- Kopelman, Richard E., and George O. Schneller IV. 1981. A Mixed-Consequence System for Reducing Overtime and Unscheduled Absences. *Journal of Organizational Behavior Management* 3: 17–28. [CrossRef]
- Krausz, Moshe, Meni Koslowsky, and Asher Eiser. 1998. Distal and Proximal Influences on Turnover Intentions and Satisfaction: Support for a Withdrawal Progression Theory. *Journal of Vocational Behavior* 52: 59–71. [CrossRef]
- Kristensen, Kai, Hans Jørn Juhl, Jacob Eskildsen, Jesper Nielsen, Niels Frederiksen, and Carsten Bisgaard. 2006. Determinants of Absenteeism in a Large Danish Bank. *The International Journal of Human Resource Management* 17: 1645–58. [CrossRef]

- Landeweerd, Jan A., and Nicolle P. G. Boumans. 1994. The Effect of Work Dimensions and Need for Autonomy on Nurses' Work Satisfaction and Health. *Journal of Occupational and Organizational Psychology* 67: 207–17. [\[CrossRef\]](#)
- Leśniowska, Joanna, Agata Schubert, Michał Wojna, Iwona Skrzekowska-Baran, and Marta Fedyna. 2014. Costs of Diabetes and Its Complications in Poland. *The European Journal of Health Economics* 15: 653–60. [\[CrossRef\]](#) [\[PubMed\]](#)
- Løkke, Ann-Kristina, Jacob K. Eskildsen, and Troels Wendelboe Jensen. 2006. Absenteeism in the Nordic Countries. *Employee Relations* 29: 16–29. [\[CrossRef\]](#)
- Løkke Nielsen, Ann-Kristina. 2008. Determinants of Absenteeism in Public Organizations: A Unit-Level Analysis of Work Absence in a Large Danish Municipality. *The International Journal of Human Resource Management* 19: 1330–48. [\[CrossRef\]](#)
- March, James G., and Herbert Alexander Simon. 1958. *Organizations*, 2nd ed. New York: Wiley.
- Mason, Claire M., and Mark A. Griffin. 2003. Group Absenteeism and Positive Affective Tone: A Longitudinal Study. *Journal of Organizational Behavior* 24: 667–87. [\[CrossRef\]](#)
- Mathis, Robert L., and John H. Jackson. 2004. *Human Resource Management*, 12th ed. International Student Edition. Mason: Thomson South-Western.
- Mchugh, Marie. 2002. The Absence Bug: A Treatable Viral Infection? *Journal of Managerial Psychology* 17: 722–38. [\[CrossRef\]](#)
- Morrow, Paula C., James C. Mcelroy, Kathleen S. Lacznik, and James B. Fenton. 1999. Using Absenteeism and Performance to Predict Employee Turnover: Early Detection through Company Records. *Journal of Vocational Behavior* 55: 358–74. [\[CrossRef\]](#)
- Moscarola, Flavia Coda, Elsa Fornero, and Steinar Strøm. 2016. Absenteeism, Childcare and the Effectiveness of Pension Reforms. *IZA Journal of European Labor Studies* 5: 1–18. [\[CrossRef\]](#)
- Muchinsky, Paul M. 1977. Employee Absenteeism: A Review of the Literature. *Journal of Vocational Behavior* 10: 316–40. [\[CrossRef\]](#)
- Mukhopadhyay, Tridas, Surendra Rajiv, and Kannan Srinivasan. 1997. Information Technology Impact on Process Output and Quality. *Management Science* 43: 1645–59. [\[CrossRef\]](#)
- Nguyen, Helena, Markus Groth, and Anya Johnson. 2016. When the Going Gets Tough, the Tough Keep Working: Impact of Emotional Labor on Absenteeism. *Journal of Management* 42: 615–43. [\[CrossRef\]](#)
- Nicholson, Nigel, Paul Jackson, and Gillian Howes. 1978. Shiftwork and Absence: An Analysis of Temporal Trends. *Journal of Occupational and Organizational Psychology* 51: 127–37. [\[CrossRef\]](#)
- Nickson, Dennis, Tom Baum, Erwin Losekoot, and Alison Morrison. 2002. *Skills, Organisational Performance and Economic Activity in the Hospitality Industry: A Literature Review*. Oxford: University of Oxford and Warwick, Economic and Social Research Council Centre for Skills, Knowledge, and Organizational Performance (SKOPE).
- Orpen, Christopher. 1979. The Effects of Job Enrichment on Employee Satisfaction, Motivation, Involvement, and Performance: A Field Experiment. *Human Relations* 32: 189–217. [\[CrossRef\]](#)
- Parasuraman, Saroj. 1982. Predicting Turnover Intentions and Turnover Behavior: A Multivariate Analysis. *Journal of Vocational Behavior* 21: 111–21. [\[CrossRef\]](#)
- Pizam, Abraham, and Steven W. Thornburg. 2000. Absenteeism and Voluntary Turnover in Central Florida Hotels: A Pilot Study. *International Journal of Hospitality Management* 19: 211–17. [\[CrossRef\]](#)
- Price, James L. 1998. Estimation of Causal Model of Absenteeism. *Indian Journal of Labour Economics* 41: 227–46.
- Punnett, Betty Jane, Dion Greenidge, and Jase Ramsey. 2007. Job Attitudes and Absenteeism: A Study in the English Speaking Caribbean. *Journal of World Business* 42: 214–27. [\[CrossRef\]](#)
- Qin, Xin, and Yuexin Jiang. 2011. The Impact of Natural Disaster on Absenteeism, Job Satisfaction, and Job Performance of Survival Employees: An Empirical Study of the Survivors in Wenchuan Earthquake. *Frontiers of Business Research in China* 5: 219–42. [\[CrossRef\]](#)
- Redman, Tom, Peter Hamilton, Hedley Malloch, and Birgit Kleymann. 2011. Working Here Makes Me Sick! The Consequences of Sick Building Syndrome. *Human Resource Management Journal* 21: 14–27. [\[CrossRef\]](#)
- Rentsch, Joan R., and Robert P. Steel. 1998. Testing the Durability of Job Characteristics as Predictors of Absenteeism over a Six-Year Period. *Personnel Psychology* 51: 165–90. [\[CrossRef\]](#)
- Rhodes, Susan, and Richard Steers. 1981. A Systematic Approach to Diagnosing Employee Absenteeism. *Employee Relations* 3: 17–22. [\[CrossRef\]](#)

- Røed, Knut, and Elisabeth Fevang. 2007. Organizational Change, Absenteeism, and Welfare Dependency. *Journal of Human Resources* 42: 156–93. [CrossRef]
- Rosse, Joseph G., and Charles L. Hulin. 1985. Adaptation to Work: An Analysis of Employee Health, Withdrawal, and Change. *Organizational Behavior and Human Decision Processes* 36: 324–47. [CrossRef]
- Saha, Somnath, Sanjay Saint, and Dimitri A. Christakis. 2003. Impact Factor: A Valid Measure of Journal Quality? *Journal of the Medical Library Association* 91: 42–46. [PubMed]
- Saxton, Mary Jane, James S. Phillips, and Roger N. Blakeney. 1991. Antecedents and Consequences of Emotional Exhaustion in the Airline Reservations Service Sector. *Human Relations* 44: 583–95. [CrossRef]
- Schneider, Benjamin, Ellen G. Godfrey, Seth C. Hayes, Mina Huang, Beng-Chong Lim, Lisa Hisae Nishii, Jana L. Raver, and Jonathan C. Ziegert. 2003. The Human Side of Strategy: Employee Experiences of Strategic Alignment in a Service Organization. *Organizational Dynamics* 32: 122–41. [CrossRef]
- Scoppa, Vincenzo. 2010. Worker Absenteeism and Incentives: Evidence from Italy. *Managerial and Decision Economics* 31: 503–15. [CrossRef]
- Somers, Mark John. 1995. Organizational Commitment, Turnover and Absenteeism: An Examination of Direct and Interaction Effects. *Journal of Organizational Behavior* 16: 49–58. [CrossRef]
- Steel, Robert P. 2003. Methodological and Operational Issues in the Construction of Absence Variables. *Human Resource Management Review* 13: 243–51. [CrossRef]
- Steel, Robert P., Joan R. Rentsch, and James R. Van Scotter. 2007. Timeframes and Absence Frameworks: A Test of Steers and Rhodes' (1978) Model of Attendance. *Journal of Management* 33: 180–95. [CrossRef]
- Störmer, Susi, and René Fahr. 2013. Individual Determinants of Work Attendance: Evidence on the Role of Personality. *Applied Economics* 45: 2863–75. [CrossRef]
- Tharenou, Phyllis. 1993. A Test of Reciprocal Causality for Absenteeism. *Journal of Organizational Behavior* 14: 269–87. [CrossRef]
- Theorell, Tores, Heinz Leymann, Margareta Jodko, Kristoffer Konarski, and Hans Erik Norbeck. 1994. 'Person Under Train' Incidents from the Subway Driver's Point of View—A Prospective 1-Year Follow-Up Study: The Design, and Medical and Psychiatric Data. *Social Science & Medicine* 38: 471–75. [CrossRef]
- Torre, Edoardo Della, Matteo Pelagatti, and Luca Solari. 2015. Internal and External Equity in Compensation Systems, Organizational Absenteeism and the Role of Explained Inequalities. *Human Relations* 68: 409–40. [CrossRef]
- Tranfield, David, David Denyer, and Palminder Smart. 2003. Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review. *British Journal of Management* 14: 207–22. [CrossRef]
- Vanden Heuvel, Audrey. 1997. Absence Because of Family Responsibilities: An Examination of Explanatory Factors. *Journal of Family and Economic Issues* 18: 273–97. [CrossRef]
- Vistnes, Jessica Primoff. 1997. Gender Differences in Days Lost from Work Due to Illness. *ILR Review* 50: 304–23. [CrossRef]
- Wagar, Terry H. 2001. Consequences of Work Force Reduction: Some Employer and Union Evidence. *Journal of Labor Research* 22: 851–62. [CrossRef]
- Waters, L. K., and Darrell Roach. 1979. Job Satisfaction, Behavioral Intention, and Absenteeism as Predictors of Turnover. *Personnel Psychology* 32: 393–97. [CrossRef]
- Wegge, Jürgen, Klaus-Helmut Schmidt, Carole Parkes, and Rolf Dick. 2007. Taking a Sickie: Job Satisfaction and Job Involvement as Interactive Predictors of Absenteeism in a Public Organization. *Journal of Occupational and Organizational Psychology* 80: 77–89. [CrossRef]
- Weiner, Nan. 1980. Determinants and Behavioral Consequences of Pay Satisfaction: A Comparison of Two Models. *Personnel Psychology* 33: 741–57. [CrossRef]
- Winkelmann, Rainer. 1999. Wages, Firm Size and Absenteeism. *Applied Economics Letters* 6: 337–41. [CrossRef]
- Yang, Jen-Te. 2010. Antecedents and Consequences of Job Satisfaction in the Hotel Industry. *International Journal of Hospitality Management* 29: 609–19. [CrossRef]
- Ybema, Jan F., Peter GW Smulders, and Paulien M. Bongers. 2010. Antecedents and Consequences of Employee Absenteeism: A Longitudinal Perspective on the Role of Job Satisfaction and Burnout. *European Journal of Work and Organizational Psychology* 19: 102–24. [CrossRef]

- Zaccaro, Stephen J., Barbara Craig, and Jeffrey Quinn. 1991. Prior Absenteeism, Supervisory Style, Job Satisfaction, and Personal Characteristics: An Investigation of Some Mediated and Moderated Linkages to Work Absenteeism. *Organizational Behavior and Human Decision Processes* 50: 24–44. [CrossRef]
- Zeytinoglu, Isik, Waheeda Lillevik, Bianca Seaton, and Josefina Moruz. 2004. Part-Time and Casual Work in Retail Trade: Stress and Other Factors Affecting the Workplace. *Relations Industrielles/Industrial Relations* 59: 516–44. [CrossRef]
- Zuba, Martin, and Ulrike Schneider. 2013. What Helps Working Informal Caregivers? The Role of Workplace Characteristics in Balancing Work and Adult-Care Responsibilities. *Journal of Family and Economic Issues* 34: 460–69. [CrossRef]



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9.4 APPENDED SCIENTIFIC PAPER 2: ASSESSING THE ECONOMIC IMPACT OF SICKNESS ABSENCE IN CROATIA BEFORE, DURING, AND AFTER THE COVID-19 CRISIS: EMPHASIS ON THE HOSPITALITY INDUSTRY

Assessing the economic impact of sickness absence in Croatia before, during, and after the COVID-19 crisis: Emphasis on the hospitality industry

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ASSESSING THE ECONOMIC IMPACT OF SICKNESS ABSENCE IN CROATIA BEFORE, DURING, AND AFTER THE COVID-19 CRISIS: EMPHASIS ON THE HOSPITALITY INDUSTRY

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Abstract

Purpose. This study aims to analyze and compare data on sickness absence in the EU and Croatia and to estimate the costs associated with sickness absence in Croatia, with a specific focus on the hospitality industry.

Design/methodology/approach. Utilizing the Human Capital Approach (HCA), we quantify the economic impact of sickness absenteeism before, during and after the COVID-19 crisis by calculating the monetary value of lost productivity due to employee absences caused by illness. Additionally, we conducted a comparison of the effects of sickness absence on Gross Value Added (GVA) between the hospitality industry and the overall Croatian economy.

Findings. The study found a significant increase in sickness absences and productivity losses due to sickness absenteeism in Croatia from 2018 to 2023, with peaks during the COVID-19 crisis (2020-2022), particularly in the hospitality industry. These results

highlight the need for effective support mechanisms, for both policymakers and organizations, that can be adapted and applied to other sectors, in order to reduce absenteeism and its negative consequences.

Originality. This is the first known study of sickness absence that encompasses the extent of this behavior across the periods before, during, and after the COVID-19 crisis at a state level. No previous studies have been found that also focus on the post-COVID-19 period. The findings provide valuable insights for policymakers, and employers aiming to enhance productivity and absenteeism management.

Keywords: sickness absence, Croatia, hospitality industry, productivity loss

JEL Classification: I18, J22, J24

Introduction

Absenteeism presents a significant challenge for enterprises and the country as a whole, as it generates high costs. These costs include not only the salary of the absent individual but also the costs of hiring replacement staff or overmanning organizations to account for a specific level of absence, costs associated with lost productivity or reduced quality of services, and many others (Whitaker, 2001). In the tourism and hospitality industry, the impact of absenteeism on overall business operations is particularly pronounced due to the its specific characteristics and labor intensity.

According to Johns (1997), there are several types of absenteeism: excused and unexcused, voluntary and involuntary. Primarily, absenteeism is viewed as an absence due to illness (sickness absence, sickness absenteeism), which is a form of excused absenteeism. Some authors expand this definition to include maternity leave (Guertzgen and Hank, 2018) or vacation (Sagie, 1998) as forms of absenteeism as well.

The COVID-19 crisis has caused significant declines in demand and income across many sectors, with the strongest impact observed in the tourism and hospitality industry (Sarişik et al., 2021). According to the WTTC (2022), prior to the pandemic, travel and tourism was one of the world's largest sectors, accounting for 1 in 4 of all new jobs created in the world, 10.3% of all jobs (333 million), and 10.3% of global GDP (USD 9.6 trillion). In 2020, 62 million jobs were lost due to COVID-19. The tourism and hospitality industry experienced severe losses, amounting to nearly USD 4.9 trillion, with its global contribution to GDP declining by 50.4% year-on-year, compared to a 3.3% decline in the global economy. Other than financial and economic impacts, COVID-19 also affected the hospitality industry operationally, organizationally and technologically (Almeida, Mesquita and Carvalho, 2022).

As a country strongly dependent on the tourism and hospitality, Croatia was also hit hard by the COVID-19. The share of tourism in the overall economy dropped from 19.5%

of GDP in 2019 to 9.6% in 2020, rising again to 19.5% of GDP in 2022, as reported by the Croatian National Bank (2024, 2024a). In 2020, 7.0 million tourist arrivals and 40.8 million overnight stays were recorded, representing a year-on-year decline of 64.2% in tourist arrivals and 55.3% in overnight stays (Croatian Bureau of Statistics, 2020).

Although sickness absence rates in tourism and hospitality industry were relatively lower before the crisis compared to the rest of the economy – particularly when compared to sectors such as public administration, education, and manufacturing, which had the highest levels of sickness absence (Maškarin Ribarić, Derado and Čikeš, 2018) – the COVID-19 crisis led to an increase in sickness absence in this sector too, mirroring trends in the broader economy.

For the purpose of this study, the pre-COVID-19 period encompasses the years 2018 and 2019, the during-COVID-19 period covers 2020 to 2022, and the year 2023 is defined as post-COVID-19. This classification is justified by the fact that many countries had lifted most, if not all, COVID-19 restrictions by 2023, leading to the reopening of economies. Additionally, widespread vaccination and natural immunity had significantly reduced the severity of the disease, further supporting the transition to a post-COVID-19 era.

This study aims to contribute to the literature in several ways. First, by examining changes in the overall absenteeism within the EU and Croatia, comparing pre-, during, and post-COVID-19 patterns. While several studies have compared sickness absences before and during the COVID-19 crisis (Edge et al., 2022; Garbin et al., 2022), to our knowledge, no studies have yet explored the patterns of sickness absences after the pandemic, and this paper aims to fill this gap. Second, no research has been found estimating the costs of sickness absences in Croatia for the periods before, during, and after COVID-19. Similar research was conducted for the period 2010-2016 (Maškarin Ribarić, 2019), and our paper addresses this gap as well. Third, we used the Human Capital Approach to estimate the costs of productivity loss due to sickness absence, introducing two new variables (labor force participation rate and unemployment rate) to minimize the criticism of overestimating productivity costs found in the literature when using this method, thereby contributing methodologically. Fourth, this paper contributes to the overall research about sickness absenteeism and fosters a better understanding of its economic impacts. Finally, our comprehensive data analysis of sickness benefits in the EU, along with the analysis of sickness absenteeism, provides valuable information for both policymakers and employers. This data can be used to design more effective national workplace health policies and interventions and to enhance the management of absence behaviors in organizations.

Taking this all into consideration, the following hypotheses have been proposed:

H1: Absenteeism is a complex phenomenon that affects business operations.

H1a: There are significant differences between sickness absence costs in Croatia before, during, and after the COVID-19 crisis.

H1b: Absenteeism in the hospitality industry is associated with increased operating costs.

H2: There are significant differences between social security models in EU countries regarding sickness benefit schemes.

H3: There are significant differences between sickness absence rates in Croatia before, during, and after the COVID-19 crisis.

H4: There are significant differences in sickness absence rates in Croatia when comparing the hospitality industry to the rest of the economy.

The structure of the paper is as it follows. Section 2 reviews existing literature on absenteeism and its impact on business operations and Section 3 examines the various models of sickness benefit schemes within social security models across European Union countries. Section 4 analyzes trends in absenteeism across EU countries, focusing on the changes before, during, and after the COVID-19 crisis. Section 5 describes the research methodology, while Section 6 presents the study's findings, including the costs of sickness absence in Croatia and the hospitality industry, and compares these costs across different periods. In Section 7, we discussed the results of our paper and reflected on the previous research as well as on the set hypotheses. Section 8 concludes by summarizing the key findings, discussing their implications, and providing recommendations for policymakers, and employers, while also suggesting areas for future research.

1. Literature review

Sick leave or sickness absence, in the literature the most commonly used form of absenteeism behavior, refers to the absence from work that is attributed to sickness by the employee and accepted as such by the employer (Whitaker, 2001). Even though it is primarily affected by employee's illness, some other determinants might affect sickness absence, too, such as demographic, attitudinal, health-related, organizational, and job determinants (Čikeš, Maškarin Ribarić and Črnjar, 2018). This unplanned behavior has numerous negative implications for the individuals, enterprises, society and the country in general. Absenteeism increases the workload of present employees (Goodman and Atkin, 1984), impacts the quality of working life (Monkevičius, 2014), lowers their morale (McHugh, 2002), raises the costs (Kocakulah et. al., 2016; Navarro and Bass, 2006; Allen, 1983), lowers process quality and output (Morrow et. al., 1999) and decreases the organizational productivity (Zhang et. al., 2017; Johns, 2011). In the literature, productivity costs mostly refer to the costs associated with production loss and replacement due to illness or disability of paid productive persons (Koopmanschap, Burdorf and Lötters, 2013). Productivity losses related to employee absenteeism have negative business implications for employers, because such losses hinder the ability of firms to generate an expected level of output and profits by depriving the enterprise of an expected level of employee labor (Bankert et al., 2015).

Absenteeism differs among different industries. High rates of absences are mostly found in health and care sector (Krane et. al., 2014) and also private sector (Uppal and

LaRochelle-Côté, 2013; Böhm and Riedel, 2013), while the lowest rates are reported in services and especially tourism and hospitality industry (Maškarin Ribarić, Derado and Čikeš, 2018).

Many studies emphasize the use of interventions to manage absenteeism and minimize its negative consequences. These interventions include communication, motivation, health protection (Cucchiella, Gastaldi, and Ranieri, 2014), and specific organizational-level intervention programs (Severin, Svensson, and Akerstrom, 2022), including work-life balance programs, for example. Implementing these strategies is crucial for improving employee well-being, maintaining productivity, and reducing the overall costs associated with absenteeism.

2. Overview of sickness benefits in the European Union

Sickness benefits within the context of social security models in the European Union (EU) vary significantly across member states due to different national policies and systems. Depending on the country, social security systems might include the pension insurance, sickness and motherhood insurance, unemployment and health insurance (Jablonskienė, 2013), as well as insurance for cases such as the death of a breadwinner or the need for parental support (van den Heever, 2021). The costs of sickness absence (sickness benefits) are divided between employers and the state, depending on each country's social security system. Overly generous sickness benefits can increase the number of recipients, prolong absence spells, and potentially cause negative long-term dynamic effects (Sjöberg, 2017). Therefore, it is up to individual country policies to adjust their sickness benefit systems to reduce overall sickness absence rates. Table 1 provides a comprehensive overview of the sickness benefits system within the EU countries, detailing the waiting period, continued full payment by the employer, the amount of benefit, and the maximum duration of benefits. Many European countries, such as Cyprus, Estonia, Ireland, Italy, Malta, Portugal, and Spain, implement a waiting period before sickness benefits are paid. In contrast, countries like Austria, Bulgaria, Croatia, Czech Republic, and Germany have no waiting period, allowing employees to receive benefits immediately.

The obligation for employers to continue full payment during the initial period of sickness absence also varies across countries. For example, in Germany, employers are required to pay for the first six weeks of sickness absence, while in Luxembourg, this period averages 13 weeks. This requirement places a financial burden on employers but also ensures that employees do not suffer an immediate loss of income. On the other hand, most of EU countries do not have this requirement and the employers are not obligated to continue paying full wages during the initial sick leave period.

The amount of sickness benefit provided also shows significant variation across countries. Austria, for instance, provides 50-60% of the gross wage, reflecting a balanced approach to maintain a portion of the employee's income while they are unable to work.

Croatia offers 70% of earnings, up to a maximum of €565 per month, ensuring a support but with an upper limit to manage costs. Some countries, such as Portugal, adjust the amount of benefit based on the duration of the sickness period, offering 55% for up to 30 days, 60% between 30 and 90 days, and up to 75% beyond 365 days, thereby providing more substantial support for longer-term illnesses.

The differences in social systems within the EU are also reflected in the maximum duration for receiving sickness benefits. For example, Austria provides benefits for a period ranging from 26 to 78 weeks, offering flexibility for different lengths of illness. In contrast, Bulgaria provides benefits until recovery or the establishment of invalidity. Slovenia and Sweden have no set limitations on the duration of benefits, while Portugal's system allows for up to 1,095 days of benefits, ensuring support for employees with long-term illnesses. On the other hand, countries like Estonia, Poland, and Lithuania have some of the shortest maximum durations for sickness benefits. Estonia and Poland offer benefits for up to 182 calendar days, while Lithuania provides benefits for up to 122 days.

Table 1. Sickness benefits across European Union countries

Country	Waiting period	Continued full payment by the employer	Sickness benefits	
			Amount	Maximum duration
Austria	No	Yes (6-12 weeks)	50% of gross wage or salary, 60% from 43rd day of illness	26-78 weeks
Belgium	No	Blue collar workers: 7 days; white collar workers: 1 month	60% of earnings	1 year
Bulgaria	No	No	80% of the average daily gross earnings	Until the recovery or the establishment of invalidity
Croatia	No	No	70% of earnings (in case of payments by Croatian Health Insurance Fund, maximum €565 per month)	12 months (if the invalidity status has not been established after that period, cash benefits continue until recovery; after 18 months, the benefit is reduced by 50%)
Cyprus	3 days	No	Ceiling up to three times the Basic Insurable Earnings	156 days (may be extended to 312 days)
Czech Republic	No	No	Basic Benefit: 60% of the weekly value of the insurance point (increased for dependants); Supplementary Benefit: 50% of the weekly value of the insurance points	380 days (may be extended with an additional 350 days)
Denmark	No	Depending on the collective agreement	Calculated on the basis of hours of work during the illness and the hourly wage (maximum €611 per week)	26 weeks
Estonia	3 days	No	70% of the reference wage	182 calendar days

Finland	9 days	Yes (9 days)	Depending on annual income	300 days (excluding Sundays) over a 2-year period
France	3 days	Depending on the collective agreement	50% of basic daily earnings (maximum €51.70 per day)	360 days per period of 3 consecutive years; up to 36 months in case of long-term sickness
Germany	No	Yes (6 weeks)	70% of the normal salary (maximum €116.38 per day)	78 weeks over a 3-year period
Greece	No	No	50% of the daily wage for the days 4-12; 100% after that	182, 360 or 720 days (depending on the length of the contribution period)
Hungary	No	No	60% of average daily gross earnings (50% in case the employment period is shorter than 2 years)	1 year
Ireland	3 days	No	Maximum of €220 per week + supplements	1 or 2 years (depending on the length of the contribution period)
Italy	3 days	No	50% of earnings until day 20; from the 21st day: 66.66%	180 days per year
Latvia	1 day	No	80% of the average gross wage from the past 12-month period	26 weeks (52 weeks over a 3-year period if incapacity has been repetitive with interruptions)
Lithuania	No	Depending on the collective agreement	62.06% of the average monthly Compensatory Wage	122 days
Luxembourg	No	Yes (13 weeks on average)	100% (the full wage)	78 weeks over a reference period of 104 weeks
Malta	3 days	Yes	Single parent/married person whose partner is not employed on a full-time basis: €23.03 per day; Single person: €14.92 per day	156 days (may be extended to 312 days)

Poland	No	No	80% of reference wage per month calculated on the basis of gross earnings during the last 12 months	182 days
Portugal	3 days	No	55% for up to 30 days; 60% between 30 and 90 days; 70% between 90 and 365 days; 75% beyond 365 days	1,095 days
Romania	No	No	75% of the average insured gross earnings over the last 6 months	183 days per year
Slovakia	No	No	55% of the daily earnings calculated on the basis of the previous year, starting from the 11th day of sickness	52 weeks
Slovenia	No	No	90% of average monthly gross wage in the last year	No limitation
Spain	3 days	No	60% of the regulatory basis for the days 4-20; 75% after that	365 days (may be extended to an additional 180 days)
Sweden	No	No	around 75% of earnings (0.97 of the income, multiplied by 0.80)	No limitation, but the benefit reduces after 364 days
The Netherlands	2 days	No	70% of the wage	104 weeks

Source: Authors, based on the data from Mutual Information System on Social Protection (2024), Comparative table database (update of 1 July 2023), European Commission. Retrieved June 2, 2024, Available at: <https://www.missoc.org/missoc-database/comparative-tables/>

3. Absenteeism in the European Union countries

The trends of absenteeism in the European Union countries have varied over the last six years. Table 2 provides an overview from 2018 to 2023 of the total absences from work, presented both as the number of people absent from work (in thousands) and as the percentage of absences relative to total employment. These data include absenteeism due to holidays, personal illness, temporary lay-offs, and other reasons. In 2020, France recorded the highest number of people absent from their jobs at 20.6 million, followed by Italy (12.3 million) and Spain (11.8 million). Among the countries with the smallest number of people absent from work were Malta (78,900), Luxembourg (128,600) and Estonia (239,600). The European Union peaked in absences in 2020, with a total of 98.8 million. By 2023, this number had decreased to 78.8 million. Croatia experienced a significant number of absences in 2020 with 931,500, which decreased to 650,600 by 2023. In terms of absences from work as a percentage of employment, France also had the highest rates in 2020 at 19.6%, followed by Cyprus (17.3%) and Slovenia (16.8%). Conversely, the countries with the lowest share of absences in employment in 2020 were Bulgaria (4.2%), Romania (4.8%) and Hungary (6.1%). The overall absence rate for the EU peaked at 13.2% in 2020 and then decreased to 10.1% by 2023. Croatia's absence rate was 14.4% in 2020, decreasing to 10.5% by 2023, aligning with the broader EU trend of post-COVID-19 recovery. These data highlight significant disparities in work absences across EU countries and indicate that while some countries experienced high share of absences in employment and high numbers of people absent from their jobs during peak pandemic years, others maintained relatively low levels (Table 2).

When examining sickness absenteeism only, the comparable data across the entire European Union are limited in both country coverage and time span, and have been reported by Eurostat. As shown in Table 3, in 2020, 16.4 million people at the EU level were absent from their jobs due to illness or disability, representing a 9.3% increase compared to 2016, when 15.0 million people were absent. The countries with the greatest number of sickness absences in 2019 were Germany (4.8 million), France (3.0 million), and Spain (2.1 million), while the smallest numbers were reported by Greece (11,100), Cyprus (14,400), and Luxembourg (18,400). In 2020, France had the highest number of sickness absences with 3.6 million people, followed by Spain (2.7 million) and Poland (1.2 million), whereas Romania (6,600), Cyprus (20,800), and Luxembourg (22,100) reported the smallest numbers. The highest increases in sickness absences among EU member states from 2016 to 2020 were observed in Lithuania (130.6%), Hungary (110.8%), and Greece (87.3%). In Croatia, there was an 18.4% increase in the number of people absent from work due to illness or disability during the same period.

Table 2. Absences from work in EU countries (2018-2023)

Year	2018		2019		2020		2021		2022		2023	
	Number of people absent (in 000)	% of total employment	Number of people absent (in 000)	% of total employment	Number of people absent (in 000)	% of total employment	Number of people absent (in 000)	% of total employment	Number of people absent (in 000)	% of total employment	Number of people absent (in 000)	% of total employment
EU 27	72,953.6	9.7	73,472.7	9.6	98,800.9	13.2	78,356.9	10.3	73,522.4	9.5	78,856.6	10.1
Belgium	1,896.7	10.2	1,970.4	10.5	2,778.8	14.9	2,244.6	11.8	2,103.2	10.8	2,220.1	11.4
Bulgaria	311.7	2.6	298.4	2.4	497.3	4.2	386.6	3.3	279.6	2.5	322.0	2.9
Czechia	1,673.5	8.2	1,757.0	8.6	2,339.7	11.6	2,414.1	12.0	2,359.0	11.8	2,424.1	12.5
Denmark	1,238.2	11.9	1,318.0	12.5	1,493.9	14.3	1,330.3	12.5	1,376.5	12.7	1,302.5	11.9
Germany	18,713.5	12.0	18,934.3	12.0	n/a	n/a	14,115.7	9.1	13,228.4	8.3	19,028.9	11.8
Estonia	209.0	8.5	226.1	9.0	239.6	9.8	289.5	11.8	320.3	12.7	313.8	12.2
Ireland	675.8	8.0	660.2	7.6	1,320.6	15.8	1,330.4	15.0	837.8	8.7	837.0	8.5
Greece	589.9	4.0	567.8	3.8	1,928.1	13.8	1,475.2	9.8	821.4	5.1	748.0	4.6
Spain	6,320.8	8.3	6,694.5	8.6	11,867.1	15.9	8,915.5	11.5	9,056.2	11.3	9,312.3	11.3
France	14,972.6	14.2	14,623.4	13.8	20,662.8	19.6	16,778.6	15.7	15,448.2	14.2	14,765.3	13.5
Croatia	622.7	9.7	645.3	9.9	931.5	14.4	717.9	11.0	627.3	9.5	650.6	10.5
Italy	6,590.5	7.5	6,722.1	7.5	12,310.3	14.3	7,443.5	8.6	6,064.8	6.8	5,726.1	6.3
Cyprus	107.6	7.0	113.1	7.1	279.0	17.3	188.5	11.4	168.7	9.8	145.7	8.2
Latvia	225.7	6.5	251.5	7.3	318.3	9.4	302.0	9.3	255.0	7.7	253.6	7.7
Lithuania	328.6	6.3	340.2	6.5	512.4	9.9	403.6	7.8	437.4	8.1	420.5	7.8
Luxembourg	96.1	8.7	97.1	8.6	128.6	11.2	7.5	8.2	95.5	7.8	101.8	8.2
Hungary	691.4	3.8	711.5	3.9	1,097.2	6.1	1,466.4	8.1	1,419.0	7.8	1,402.4	7.7

Malta	n/a	n/a	11.3	1.6	78.9	8.0	83.4	8.2	77.6	7.1	98.4	8.6
Netherlands	3,605.3	11.2	3,488.7	10.7	3,731.0	11.4	3,283.5	9.9	4,041.6	11.9	4,252.4	12.3
Austria	2,055.8	12.5	1,998.2	12.1	2,530.3	15.6	2,042.8	12.5	2,071.5	12.3	1,984.6	11.7
Poland	4,522.4	7.1	4,504.9	6.9	6,304.9	9.7	4,299.7	6.4	3,892.5	5.8	4,013.9	6.0
Portugal	1,650.9	9.1	1,616.2	8.9	2,636.2	14.8	2,331.1	12.8	2,048.8	11.0	1,968.8	10.4
Romania	511.4	1.7	506.2	1.7	1,422.6	4.8	534.7	1.8	605.5	2.0	623.5	2.1
Slovenia	405.7	10.7	427.4	11.2	635.1	16.8	362.1	9.6	391.2	10.3	494.6	12.9
Slovakia	749.0	7.2	691.3	6.6	1,256.1	12.3	1,232.8	12.3	1,113.3	10.9	1,027.6	10.1
Finland	1,274.8	13.5	1,312.2	13.8	1,340.2	14.3	1,452.5	15.2	1,443.8	14.8	1,481.1	15.2
Sweden	2,910.6	15.4	2,984.7	15.8	3,108.3	16.6	2,834.2	15.0	2,938.1	15.2	2,936.9	15.0

Source: Authors, based on the data from Eurostat (2024a), Labor force survey, "Total absences from work by sex and age group - quarterly data", Retrieved June 1, 2024, Available at: [https://ec.europa.eu/eurostat/databrowser/view/fsi_abt_q\\$defaultview/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/fsi_abt_q$defaultview/default/table?lang=en), https://doi.org/10.2908/LFSI_ABT_Q

Table 3. Absence from work due to illness or disability in EU countries, number of people, in thousands (2016-2020)

	2016	2017	2018	2019	2020
EU 27 (average)	558.7	572.5	595.4	596.3	610.6
Belgium	540.5	538.3	581.4	607.7	640.9
Bulgaria	37.9	40.0	40.4	34.8	52.7
Czechia	378.7	412.4	423.3	429.9	519.3
Denmark	175.7	176.5	164.2	187.8	196.6
Germany	4,589.7	4,812.0	4,937.4	4,896.3	n/a
Estonia	29.3	32.4	34.1	36.9	42.4
Ireland	87.3	101.5	116.7	121.5	128.5
Greece	11.8	11.2	20.0	11.1	22.1
Spain	1,662.2	1,793.6	1,959.5	2,101.1	2,756.6
France	2,921.1	2,929.4	3,035.9	3,024.6	3,602.6
Croatia	133.8	146.8	157.3	163.2	158.4
Italy	982.2	909.2	776.3	649.4	664.1
Cyprus	12.6	13.7	17.6	14.4	20.8
Latvia	47.7	45.1	41.8	66.2	67.7
Lithuania	31.7	36.2	45.6	51.3	73.1
Luxembourg	14.6	16.0	18.5	18.4	22.1
Hungary	96.2	94.0	123.3	131.8	202.8
Malta	n/a	n/a	n/a	n/a	n/a
Netherlands	575.5	573.4	627.3	601.7	633.7
Austria	283.4	291.5	344.2	334.3	350.9
Poland	988.0	1,013.7	1,074.9	1,086.1	1,270.3
Portugal	524.1	539.1	592.5	580.4	676.2
Romania	n/a	n/a	n/a	n/a	6.6
Slovenia	96.3	98.1	110.5	114.4	120.8
Slovakia	147.6	149.0	157.6	132.1	212.8
Finland	211.1	211.6	227.6	217.4	221.7
Sweden	480.8	457.8	453.6	442.6	551.0

Source: Authors, based on the data from Eurostat (2024), Labor force survey, "Absence from work by main reason, sex and age group (2006-2020)- quarterly data", Retrieved June 2, 2024, Available at: [https://ec.europa.eu/eurostat/databrowser/view/lfsi_abs_q_h\\$defaultview/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/lfsi_abs_q_h$defaultview/default/table?lang=en), https://doi.org/10.2908/LFSI_ABS_Q_H

Data on sick leaves in Croatia are collected and published by the Croatian Health Insurance Fund (CHIF). For the first 42 days of sick leave (short-term sick leaves), employers cover the sick pay, while CHIF covers sick leaves longer than 42 days (long-term sick leaves). From 2018 to 2023, the average number of sick days per employee varied, peaking at 16.34 days in 2020 before decreasing to 13.58 days in 2023 (Table 4). Sick days covered by employers decreased from 9.73 days in 2020 to 8.14 days in 2023, while those covered by CHIF dropped from 38.44 days in 2018 to 29.40 days in 2021 before rising to 33.28 days in 2023. This indicates that while the overall sick days showed a recovery post-pandemic, the burden of long-term sick leave shifted, but remained significant for CHIF.

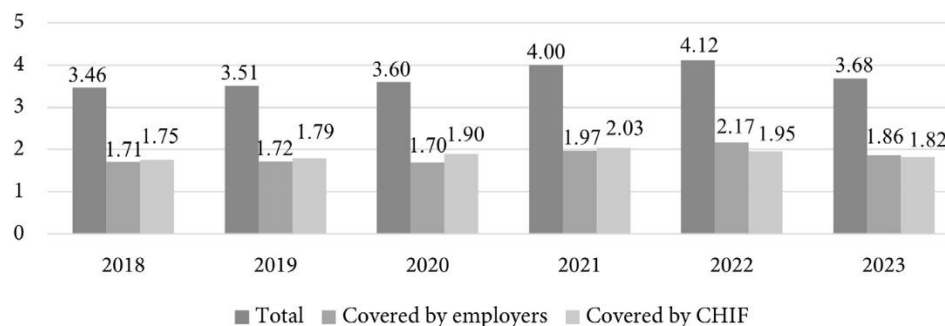
Table 4. Average number of sick days per year per employee in Croatia

	2018	2019	2020	2021	2022	2023
Total	15.40	15.40	16.34	15.32	13.23	13.58
Covered by employers	8.93	8.90	9.73	9.61	8.39	8.14
Covered by CHIF	38.44	37.70	33.26	29.40	29.49	33.28

Source: Authors, based on the data from Croatian Health Insurance Fund (2024), Annual reports 2018-2023, Retrieved June 1, 2024, Available at: <https://hzzo.hr/o-nama/izvjesca>

Between 2018 and 2022, the rates of temporary incapacity for work increased, both overall (from 3.46% to 4.12%) and for short-term sick leave periods (from 1.17% to 2.17%), as shown in Chart 1. The rates for long-term sick leave periods grew from 2018 to 2021 (from 1.75% to 2.03%) before starting to decline. In 2023, the rates decreased further, reaching 1.82%, which is lower than the rate at the beginning of COVID-19. Comparing the rates of temporary incapacity for work covered by employers and CHIF in 2022 and 2023, a greater share in total absences fell on employers than in previous years, increasing their burden.

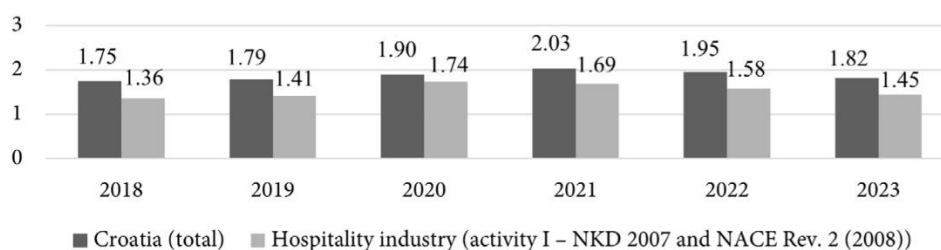
Chart 1. Rates of temporary incapacity for work in Croatia (the ratio of the number of daily sick people and the number of active insured persons)



Source: Authors, based on the data from Croatian Health Insurance Fund (2024), Annual reports 2018-2023, Retrieved June 1, 2024, Available at: <https://hzzo.hr/o-nama/izvjesca>

When observing hospitality industry (activity I – Accommodation and food service activities, Croatian National Classification of Activities – NKD 2007 and NACE Rev. 2 (2008).) in comparison to the average of the whole economy, it is evident that the rates of temporary incapacity for work (sick leaves covered by CHIF) in this sector are consistently lower throughout the observed period (2018-2023). The rates started at 1.36% in 2018, peaked at 1.74% in 2020, and then dropped to 1.45% in 2023 (Chart 2).

Chart 2. Rates of temporary incapacity for work covered by CHIF in the Croatian economy and hospitality industry (activity I – NKD 2007 and NACE Rev. 2 (2008))



Source: Authors, based on the data from Croatian Health Insurance Fund (2024), Annual reports 2018-2023, Retrieved June 1, 2024, Available at: <https://hzzo.hr/o-nama/izvjesca>

These results align with previous research, indicating that, compared to other sectors, the tourism and hospitality industry has among the lowest absence rates.

4. Methodology

In order to estimate the costs of sickness absence, i.e., loss of productivity, researchers suggest two approaches – Human Capital Approach (HCA) and Friction Cost Method (FCM). The Human Capital Approach values total production lost due to illness, disability, or premature death by calculating the total period of absence (or disability or from death until the retirement age) and subsequently multiplying this by the wage rate (or an average expected wage rate for the relevant period) of the absent worker (Koopmanschap, Burdorf and Lötters, 2013). Some experts argue that the HCA overstates productivity losses and propose use of the FCM that estimates societal productivity loss as the short-term costs incurred by employers in replacing a lost worker (Pike and Grosse, 2018). To assess lost productivity using this approach, the friction period – the time required to replace the work – must be determined, which depends on the unemployment level and the efficiency of finding a replacement. Since these factors vary by activity and work type, the friction period is specific to circumstances and changes constantly (Maškarin Ribarić, 2019).

In this paper, the Human Capital Approach will be used. The loss of productivity was calculated by multiplying the time lost due to sickness absence by the market value of work (gross salary). The obtained amount was then adjusted for labor force participation and

unemployment rates to ensure that productivity losses more accurately reflect the real state, as presented in the following formula:

$$\text{productivity loss} = \frac{(t \times g \times 8) \times (p \div 100) \times ((100 - u) \div 100)}{\text{GVA}} \times 100$$

where:

- t – time lost due to sickness absence (days of temporary incapacity for work),
- g – average monthly gross earning per paid hour,
- p – labor force participation rate,
- u – unemployment rate,
- GVA – gross value added.

Similar approach was also used in other researches (Maškarin Ribarić, 2019). Days of temporary incapacity for work (absence from work due to illness or injury) were obtained from the Croatian Health Insurance Fund's annual reports for the years 2018-2023 (2024). Data on the average monthly gross earning per paid hour were obtained from the Croatian Bureau of Statistics (CBS) (2024). Labor force participation data were downloaded from the World Bank (2024), and unemployment rate data were sourced from Eurostat (2024b). Gross value added (GVA) was used as a productivity measure, as seen in previous studies (Łyszczarz and Nojszewska, 2017). Data for the years 2018-2022 were obtained from the CBS (2024a), while data for 2023 were provided directly by CBS and represent the sum of the quarterly estimates for that year.

5. Results

In the period 2018-2023, the average monthly gross earning per paid hour increased by nearly one-third, reaching 9 EUR in 2023 (in current prices), as presented in Table 5. Meanwhile, the unemployment rate decreased by 2.4%, dropping from 8.5% in 2018 to 6.1% in 2023, which is also the lowest rate in the observed period. From 2018 to 2023, the loss of productivity increased by 71.1%. Prior to the COVID-19 crisis, the loss of productivity accounted for 412 million EUR in 2018 (0.96% of GVA) and 452 million EUR in 2019 (1.00% of GVA). During the COVID-19 crisis, these rates peaked, with productivity loss of 1.68 billion EUR in the years 2020-2022. The highest productivity loss is visible in 2023, counting for 704.9 million EUR, which is 1.11% of GVA, as shown in Table 5.

Table 5. Loss of productivity due to sickness absence in Croatia, HCA method

	Days of temporary incapacity for work	Average monthly gross earning per paid hour (in current prices, EUR)	Labor force participation (%)	Unemployment rate (%)	Loss of productivity (in current prices, EUR)	GVA (in current prices, EUR)	Productivity loss in GVA (%)
2018	16,942,139	6.49	51.19	8.5	412,011,320	42,816,706,261	0.96
2019	17,566,616	6.74	51.10	6.6	452,070,083	45,117,833,198	1.00
2020	17,812,140	6.92	51.03	7.5	465,456,910	42,195,913,272	1.10
2021	20,166,464	7.23	51.78	7.6	558,074,343	48,298,122,882	1.16
2022	21,658,752	7.85	52.30	7.0	661,572,904	57,037,269,148	1.16
2023	19,811,999	9.00	52.63	6.1	704,952,339	63,437,372,700	1.11

Source: Authors' research

To estimate the costs of time lost due to sickness absence in the hospitality industry before, during, and after the COVID-19 crisis, the following calculations are used:

$$\text{sickness costs (economy)} = \frac{(t_e \times g_e)}{GVA_e} \times 100$$

$$\text{sickness costs (hospitality industry)} = \frac{(t_t \times g_t)}{GVA_t} \times 100$$

where:

t_e – time lost due to sickness absence (days of temporary incapacity for work) – Croatia,

t_t – time lost due to sickness absence (days of temporary incapacity for work) – hospitality industry (NKD "I"),

g_e – average monthly gross earning per paid hour – Croatia,

g_t – average monthly gross earning per paid hour – hospitality industry (NKD "I"),

GVA_e – gross value added – Croatia,

GVA_t – gross value added – hospitality industry (NKD "I").

The total number of days of temporary incapacity for work is multiplied by the average monthly gross earning per paid hour, separately for the entire Croatian economy and for the hospitality industry alone. Subsequently, the cost of time lost due to sickness absence is expressed as a percentage of the gross value added (GVA) for Croatia as a whole and for the hospitality industry specifically (Chart 3).

Chart 3. The cost of time lost due to sickness absence in Croatia (% of GVA)

Source: Authors' research

The share of the cost of time lost due to sickness absence in GVA ranges from 2.05% in 2018 to 2.25% in 2023 when observing the total economy (Chart 3). In the hospitality industry, these shares are much lower, ranging from 0.81% in 2018 to 0.91% in 2023. In 2020, the share of the cost of time lost in GVA for hospitality industry was the highest in the observed period, reaching 1.86%. For the entire economy, the highest rate was achieved in 2021, accounting for 2.42%. Although these results indicate that Croatian hospitality industry generally performs better than the overall economy, the data also confirm the industry's dependence on external factors such as the COVID-19 crisis. However, lower share of the costs of time lost in GVA in the hospitality industry, in comparison to the overall economy, are also the result of lower average monthly gross earning per paid hour and lower number of days of temporary incapacity for work (i.e., lower sick leave rate).

6. Discussion

Absenteeism, particularly sickness absence, has numerous negative implications for individuals, enterprises, society, and the country, including increased workload for present employees, lowered morale, raised costs, reduced process quality and output, and decreased organizational productivity. These impacts are intensified during periods of crisis, as evidenced by the significant changes in productivity costs due to sickness absence in Croatia before, during, and after the COVID-19 crisis. Productivity losses observed within the hospitality industry were also significant, but with somewhat better image than the rest of the economy. These findings support the hypothesis *H1*, as well as the sub-hypotheses *H1a* and *H1b*. High absenteeism costs and productivity losses during COVID-19 were also reported in previous studies (Famarzi et. al, 2021; Yang et. al, 2023).

The hypothesis that there are significant differences between social security models in EU countries regarding sickness benefit schemes (*H2*) is also strongly supported by the data. The analysis reveals considerable variation in waiting periods, employer obligations for continued payment, the amount of benefit provided, and the maximum duration of

benefits across member states. These differences highlight the diverse approaches to managing sickness absence, reflecting each country's unique policy priorities. Previous comparative analysis of sickness benefits within the European Union also found great differences among the countries (Spasova, Bouget and Vanhercke, 2016; Chaupain-Guillot and Guillot, 2017).

Fluctuations in sickness absence over the periods before, during, and after the COVID-19 crisis support the hypothesis *H3*. The average number of sick days per employee peaked in 2020 at 16.34 days, reflecting the immediate impact of the pandemic on health and work attendance, before decreasing to 13.58 days by 2023. These findings align with the broader European trends supported by previous analyses of sickness absence before and during the COVID-19 crisis (Edge et al., 2022; Garbin et al., 2022).

The data indicate significant differences in sick leave rates between the hospitality industry and the rest of the economy in Croatia, supporting *H4*. From 2018 to 2023, the hospitality sector consistently had lower rates of temporary disability compared to the general economy, with a peak of 1.74% in 2020 falling to 1.45% in 2023. In contrast, the general economy saw an increase in temporary disability rates, reaching 4.12% in 2022. This is also supported by previous research on this matter (Maškarin Ribarić, Derado and Čikeš, 2018).

Conclusion

This study provides a comprehensive analysis of sickness absenteeism and its economic implications, particularly focusing on the hospitality industry in Croatia and the broader European Union. The findings reveal that from 2018 to 2023, both sickness absences and productivity losses due to sickness absenteeism in Croatia increased significantly, across the entire economy and within the hospitality industry specifically. The peaks of sickness absences and productivity losses occurred during the COVID-19 crisis, particularly in the years 2020-2022. The study also reveals considerable variation in sickness benefit schemes across European Union countries, reflected in the distribution of costs between employers and social security systems.

Theoretical, empirical and practical implications. This analysis contributes significantly to sickness absenteeism research by offering a comprehensive exploration of its diverse impacts on business operations and national economies. By providing new insights and empirical evidence, this study enhances the existing literature and expands the understanding of absenteeism phenomena. Further, this study provides empirical evidence supporting the existence of significant differences in sickness absence rates and costs between the hospitality industry and the broader economy. Lower sickness rates and costs in the hospitality industry can have practical implications for policymakers and organizations, indicating potential areas for targeted support mechanisms that can be adapted and applied to other sectors to reduce absenteeism. Such mechanisms might include clear absence management policies, improved working conditions, work-life balance initiatives, wellness and

incentive programs, as well as flexible work arrangements like flexible working hours and remote work options. These strategies can help optimize human resource management and enhance overall organizational performance. In this study, the Human Capital Approach was used to estimate the costs of sickness absence. Moreover, the labor force participation rate and unemployment rate were introduced in the equation, addressing the criticisms of overestimation in traditional productivity cost assessments and providing a more accurate reflection of absenteeism's economic impacts. Finally, the differences in social security models and sickness benefit schemes across EU countries, reflected in the diverse policy priorities and approaches to managing sickness absence, can provide a valuable comparative framework for policymakers. Elements of the most effective social security models and best practices could be implemented in EU countries with the highest absenteeism rates. Additionally, to facilitate better comparisons and improve monitoring systems, standardized methods for measuring, collecting, and expressing sickness absence data – including rates, causes, and costs – could be developed. By considering these suggestions, policymakers can help create more efficient social security systems that balance the needs of both employees and employers.

Limitations and future directions. This study has several limitations. First, this study was conducted in Croatia, and when comparing these results with other countries, it is important to consider differences in economic structures, healthcare systems, and labor market conditions. Second, the strategies to prevent the spread of the pandemic differed significantly in EU countries and their influence on the data on sick leave is certainly present and significant, but was not analyzed in this paper. Future studies might explore this relation. Third, while the study covers the period from 2018 to 2023, it may not capture long-term trends or the full impact of the COVID-19 crisis, especially as the post-pandemic period continues. Future studies might explore the long-term effects of post-pandemic absenteeism. Fourth, we focused on the hospitality industry in order to emphasize the importance of managing this undesirable employee behavior within one of the greatest generators of Croatian economy. The costs of absenteeism in other sectors, or some other aspects of absenteeism behavior might be explored in future studies, too. Finally, future researches might focus on different aspects of work during COVID-19 crisis and its effects on sickness absence rates, such as hybrid and remote working models.

References

1. Allen, S. G. (1983). How much does absenteeism cost?. *Journal of Human Resources*, 18 (3), 379-393, <https://doi.org/10.2307/145207>.
2. Almeida, S., Mesquita, S., & Carvalho, I. (2022). The covid-19 impacts on the hospitality industry highlights from experts in Portugal. *Tourism and hospitality management*, 28 (1), 61-81, <https://doi.org/10.20867/thm.28.1.3>.
3. Bankert, B., Coberley, C., Pope, J. E. & Wells, A. (2015). Regional Economic Activity and

- Absenteeism: A New Approach to Estimating the Indirect Costs of Employee Productivity Loss. *Population Health Management*, 18 (1), 47–53, <https://doi.org/10.1089/pop.2014.0025>.
4. Böhm, T., & Riedel, N. (2013). On selection into public civil service. *CESifo Economic Studies*, 59 (1), 34–71, <https://doi.org/10.1093/cesifo/ifs037>.
 5. Chaupain-Guillot a, S., & Guillot b, O. (2017). Sickness benefit rules and work absence: an empirical study based on European data. *Revue d'économie politique*, (6), 1109–1137, <https://doi.org/10.3917/redp.276.1109>.
 6. Croatian Health Insurance Fund (2024), Annual reports 2018–2023, Retrieved June 1, 2024, Available at: <https://hzzo.hr/o-nama/izvjesca>.
 7. Croatian Bureau of Statistics (2020), “Tourism arrivals and nights”, Retrieved June 1, 2024, Available at: https://web.dzs.hr/Hrv_Eng/Pokazatelj/MSI%20TURIZAM.xlsx.
 8. Croatian Bureau of Statistics (2024), “Average monthly gross earnings per hour of work in legal entities, according to NKD 2007 months, results from JOPPD forms”, Retrieved June 1, 2024, Available at: <https://podaci.dzs.hr/media/yegdgb5v/place.xlsx>.
 9. Croatian Bureau of Statistics (2024a), “Gross value added by activities and gross domestic product, current prices, 1995 - 2022 (ESA 2010)”, Retrieved June 1, 2024, Available at: <https://podaci.dzs.hr/media/c51dcnbr/bruto-domaci-proizvod-godisnji.xlsx>.
 10. Croatian National Bank (2024), “Main macroeconomic indicators”, Retrieved June 1, 2024, Available at: https://www.hnb.hr/documents/20182/121813/e-ekonomski_indikatori.xlsx/b033c490-f46c-9251-f966-635559c7f4fd?t=1715776065680.
 11. Croatian National Bank (2024a), “Table H2 Balance of payments – goods and services”, Retrieved June 1, 2024, Available at: <https://www.hnb.hr/documents/20182/60df249f-4fd3-ffc6-070a-9c0365722b74>.
 12. Cucchiella, F., Gastaldi, M. & Ranieri, L. (2014). Managing absenteeism in the workplace: the case of an Italian multiutility company. *Procedia-Social and Behavioral Sciences*, 150, 1157–1166, <https://doi.org/10.1016/j.sbspro.2014.09.131>.
 13. Čikeš, V., Maškarić, H. & Črnjar, K. (2018). The determinants and outcomes of absence behavior: a systematic literature review. *Social Sciences*, 7(8), 120, <https://doi.org/10.3390/socsci7080120>.
 14. Edge, R., Van Der Plaat, D.A., Parsons, V., Coggon, D., Van Tongeren, M., Muir, R., Madan, I. & Cullinan, P. (2022). Changing patterns of sickness absence among healthcare workers in England during the COVID-19 pandemic. *Journal of Public Health*, 44(1), e42–e50, <https://doi.org/10.1093/pubmed/fdab341>.
 15. Eurostat (2024), Labor force survey, “Absence from work by main reason, sex and age group (2006–2020)- quarterly data”, Retrieved June 2, 2024, Available at: [https://ec.europa.eu/eurostat/databrowser/view/lfsi_abs_q_h\\$defaultview/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/lfsi_abs_q_h$defaultview/default/table?lang=en), https://doi.org/10.2908/LFSI_ABS_Q_H.
 16. Eurostat (2024a), Labor force survey, “Total absences from work by sex and age group - quarterly data”, Retrieved June 1, 2024, Available at: [https://ec.europa.eu/eurostat/databrowser/view/lfsi_abt_q\\$defaultview/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/lfsi_abt_q$defaultview/default/table?lang=en), https://doi.org/10.2908/LFSI_ABT_Q.
 17. Eurostat (2024b), “Unemployment by sex and age – annual data”, Retrieved June 1, 2024, Available at: https://ec.europa.eu/eurostat/databrowser/product/page/une_rt_a, https://doi.org/10.2908/UNE_RT_A.
 18. Faramarzi, A., Javan-Noughabi, J., Tabatabaee, S. S., Najafpoor, A. A., & Rezapour, A. (2021).

- The lost productivity cost of absenteeism due to COVID-19 in health care workers in Iran: a case study in the hospitals of Mashhad University of Medical Sciences. *BMC health services research*, 21, 1-7, <https://doi.org/10.1186/s12913-021-07200-x>.
19. Garbin, A.J.Í., Nascimento, C.C.M.P., Zacharias, F.C.M., Garbin, C.A.S., Moimaz, S.A.S. & Saliba, N.A., (2022). Sickness absenteeism of Primary Health Care professionals before and during the COVID-19 pandemic. *Revista brasileira de enfermagem*, 75, p.e20220028, <https://doi.org/10.1590/0034-7167-2022-0028>.
 20. Goodman, P.S. & Atkin, R.S. (1984). Effects of absenteeism on individuals and organizations. In Goodman, P.S. & Atkin, R.S. (Eds), *Absenteeism: New approaches to understanding, measuring, and managing employee absence*, Jossey-Bass, San Francisco, 276-321.
 21. Guertzen, N., & Hank, K. (2018). Maternity leave and mothers' long-term sickness absence: Evidence from West Germany. *Demography*, 55 (2), 587-615, <https://doi.org/10.1007/s13524-018-0654-y>.
 22. Jablonskienė, D. (2013). Influence of pension funds and life insurance on old-age pension. *Intelektinė ekonomika*, 7 (3), 375-388, <https://doi.org/10.13165/ie-13-7-3-08>.
 23. Johns, G. (1997). Contemporary research on absence from work: Correlates, causes, and consequences. *International Review of Industrial and Organizational Psychology*, 12, 115-174.
 24. Johns, G. (2011). Attendance dynamics at work: the antecedents and correlates of presenteeism, absenteeism, and productivity loss. *Journal of occupational health psychology*, 16 (4), 483-500, <https://doi.org/10.1037/a0025153>.
 25. Kocakulah, M.C., Kelley, A.G., Mitchell, K.M. & Ruggieri, M.P. (2016). Absenteeism problems and costs: causes, effects and cures. *The International Business & Economics Research Journal (Online)*, 15 (3), 89-96, <https://doi.org/10.19030/iber.v8i5.3138>.
 26. Koopmanschap, M., Burdorf, A., & Lötters, F. (2013). Work Absenteeism and Productivity Loss at Work. *Handbook of Work Disability*, 31-41. doi:10.1007/978-1-4614-6214-9_3.
 27. Krane, L., Johnsen, R., Fleten, N., Nielsen, C. V., Stapelfeldt, C. M., Jensen, C., & Braaten, T. (2014). Sickness absence patterns and trends in the health care sector: 5-year monitoring of female municipal employees in the health and care sectors in Norway and Denmark. *Human resources for health*, 12, 1-8, <https://doi.org/10.1186/1478-4491-12-37>.
 28. Łyszczarz, B. & Nojszewska, E. (2017). Productivity losses and public finance burden attributable to breast cancer in Poland, 2010-2014. *BMC cancer*, 17, 1-13, <https://doi.org/10.1186/s12885-017-3669-7>.
 29. Maškarin Ribarić, H., Derado, D. & Čikeš, V. (2018). International comparison of productivity in manufacturing and services with reference to sickness leaves. In 7. međunarodni znanstveni simpozij: *Gospodarstvo istočne Hrvatske-vizija i razvoj=7th International Scientific Symposium: Economy of Eastern Croatia-Vision and Growth*, 346-359.
 30. Maškarin Ribarić, H. (2019). Razmjeri i efekti bolovanja u hrvatskom ugostiteljstvu-osvrt na produktivnost. *Oeconomica Jadertina*, 9 (1), 24-33, <https://doi.org/10.15291/oec.2835>.
 31. McHugh, M. (2002). The absence bug: a treatable viral infection?. *Journal of managerial psychology*, 17 (8), 722-738, <https://doi.org/10.1108/02683940210450510>.
 32. Monkevičius, A. (2014). Quality of working life concept and empirical indicators. *Intelektinė ekonomika*, 8 (1), 8-24, <https://doi.org/10.13165/ie-14-8-1-01>.
 33. Morrow, P.C., McElroy, J.C., Lacznia, K.S. & Fenton, J.B. (1999). Using absenteeism and

- performance to predict employee turnover: Early detection through company records. *Journal of vocational behavior*, 55 (3), 358-374, <https://doi.org/10.1006/jvbe.1999.1687>.
34. Mutual Information System on Social Protection (2024), Comparative table database (update as at July 7, 2023), European Commission, Retrieved June 2, 2024, Available at: <https://www.missoc.org/missoc-database/comparative-tables/>.
 35. Navarro, C. & Bass, C. (2006). The cost of employee absenteeism. *Compensation & Benefits Review*, 38 (6), 26-30, <https://doi.org/10.1177/0886368706295343>.
 36. Pike, J., & Grosse, S. D. (2018). Friction cost estimates of productivity costs in cost-of-illness studies in comparison with human capital estimates: a review. *Applied health economics and health policy*, 16 (6), 765-778, <https://doi.org/10.1007/s40258-018-0416-4>.
 37. Sagie, A. (1998). Employee Absenteeism, Organizational Commitment, and Job Satisfaction: Another Look. *Journal of Vocational Behavior*, 52 (2), 156-171, doi:10.1006/jvbe.1997.1581.
 38. Sarişik, M., Türkay, O., Şengül, S., Bicil, İ.M. & Boğan, E. (2021). Covid-19 shock to Tourism Industry: Possible scenarios for predicted losses between 2020-2024. *Anais Brasileiros de Estudos Turísticos*, 11, 1-14. <https://doi.org/10.5281/zenodo.5770234>.
 39. Spasova, S., Bouget, B., and Vanhercke, B. (2016). *Sick Pay and Sickness Benefit Schemes in the European Union. (Background report for the Social Protection Committee's)*. Brussels, Belgium: European Commission, <https://doi.org/10.2767/531076>.
 40. Sjöberg, O. (2017). Positive welfare state dynamics? Sickness benefits and sickness absence in Europe 1997-2011. *Social Science & Medicine*, 177, 158-168, <https://doi.org/10.1016/j.socscimed.2017.01.042>.
 41. Uppal, S., & LaRochelle-Côté, S. (2013). Understanding public-private sector differences in work absences. *Insights on Canadian Society, Statistics Canada Catalogue*, (75-006), Retrieved June 3, 2024, Available at: https://www.researchgate.net/profile/Sharanjit-Uppal/publication/309350896_Understanding_public-private_sector_differences_in_work_absences/links/580a46cc08ae2cb3a5d2fffc/Understanding-public-private-sector-differences-in-work-absences.pdf.
 42. van den Heever, A. M. (2021). 3. Social insurance. In Schüring, E., & Loewe, M. (Eds.), *Handbook on social protection systems*. Cheltenham, UK; Northampton, MA: Edward Elgar Publishing, 68-77, <https://doi.org/10.4337/9781839109119.00017>.
 43. Whitaker, S.C. (2001). The management of sickness absence. *Occupational and environmental medicine*, 58 (6), 420-424, <https://doi.org/10.1136/oem.58.6.420>.
 44. World Bank (2024), "Labor force participation rate, total (% of total population ages 15+) (modeled ILO estimate) - Croatia", Retrieved June 2, 2024, Available at: <https://data.worldbank.org/indicator/SL.TLF.CACT.ZS?end=2023&locations=HR&start=2018>.
 45. WTTC (2022), "Travel & Tourism Economic Impact Global Trends 2022", Retrieved June 1, 2024, Available at: <https://wttc.org/Portals/0/Documents/Reports/2022/EIR2022-Global%20Trends.pdf>.
 46. Yang, J., Rai, K. K., Seif, M., Volkman, H. R., Ren, J., Schmetz, A., Gowman, H., Massey, L., Pather, S. & Nguyen, J. L. (2023). COVID-19-related work absenteeism and associated lost productivity cost in Germany: a population-based study. *Journal of Occupational and Environmental Medicine*, 10-1097, <https://doi.org/10.1097/JOM.0000000000003093>.
 47. Zhang, W., Sun, H., Woodcock, S. & Anis, A.H. (2017). Valuing productivity loss due to absenteeism: firm-level evidence from a Canadian linked employer-employee survey. *Health economics review*, 7, 1-14, <https://doi.org/10.1186/s13561-016-0138-y>.

9.5 APPENDED SCIENTIFIC PAPER 3: EFFECTS OF JOB ATTITUDES ON WITHDRAWAL BEHAVIORS: EVIDENCE FROM THE CROATIAN HOTEL INDUSTRY

Effects of job attitudes on withdrawal behaviors: Evidence from the Croatian hotel industry

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Effects of job attitudes on withdrawal behaviors: Evidence from the Croatian hotel industry*

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Abstract

The hotel industry, like other service sectors, faces significant challenge in managing withdrawal behaviors, due to their substantial impact on performance and profitability. This paper investigates the relationship between two job attitudes – organizational commitment and job involvement – and two withdrawal behaviors – absenteeism and intention to leave. The study utilized a random sample of 734 hotel employees in Croatia. Logistic regression analysis was used to predict absenteeism and turnover intentions. Statistically significant negative relationships were found between affective and normative commitment and absenteeism, as well as affective, normative and continuance commitment and turnover intentions. However, no significant effect was found between job involvement and absenteeism, although a strong and negative relationship exists between job involvement and turnover intentions. Additionally, a positive relationship was identified between job involvement and all components of organizational commitment. These findings can provide a foundation for human resource management and decision-making processes in the hotel industry, offering insights into employee attitudes, and can be a pushover in the creation of strategies to manage undesirable employee behaviors.

Keywords: absenteeism, turnover intentions, organizational commitment, job involvement, hotel industry

JEL classification: J22, J63

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1. Introduction

Tourism and hospitality play an important role in the global economy due to its significant economic contributions. These sectors stimulate economic growth, create jobs, and foster cultural exchange. According to the World Travel & Tourism Council (WTTC), in 2023, the tourism sector contributed approximately 10.4% to the global GDP and supported around 334 million jobs, which is about 1 in 10 jobs in the global workforce. In a country like Croatia, where tourism accounts for 19.6% of the GDP (Croatian National Bank, 2024) and directly employs about 6% of the total workforce (Croatian Bureau of Statistics, 2024), the significant impact of tourism on the overall economy is clearly evident.

The hotel industry, a vital component of tourism, is labor-intensive, and the human factor plays a key role in its success. Similar to other service industries, the hotel industry faces significant challenges in managing withdrawal behaviors, which include physical withdrawal manifestations such as absenteeism and turnover intentions. Turnover research has shown that an employee's self-expressed intentions to leave their job are the best predictor of actual turnover (Beecroft et al. 2008). Withdrawal behaviors adversely affect hotel profitability by increasing costs related to replacement, employment, training, and other planned or unplanned expenses. According to the European Commission (Hassard, 2014), absenteeism costs €20 billion a year in the EU-15 alone. The Bureau of Labor Statistics (Walsh, 2021) estimated the overall absenteeism rate for all employees in the United States in 2020 was 2.8%. When it comes to turnover, the annual overall turnover rate in the U.S. in 2017 was 26.3%, based on the Bureau of Labor Statistics.

Researchers found withdrawal behaviors significantly decrease customer satisfaction (Yan et al., 2021; Mohsin et al., 2022), causing lower service quality and increased workload for other employees (Mukwevho et al., 2020).

Absenteeism and turnover intentions are often being researched in hospitals and among nurses (Smokrović et al., 2022, Labrague et al., 2020; Brborovic et al., 2016), in manufacturing industry (Nowak et al., 2023; Li et al., 2019) and public sector (Mastekaasa, 2020; Kim and Min Park, 2014), while studies in hotel industry are quite scarce (Mukwevho et al., 2020; Pizam and Thornburg, 2000; Kim et al., 2015; Qiu et al., 2015).

Although the causes of absenteeism and turnover intentions in various settings can be attributed to a combination of factors, including individual (Kolz, 1999; Störmer and Fahr, 2013; Seyrek and Turan, 2017), job-related (Barnby et al., 2001; Scoppa, 2010; Samad, 2006; Ahmad, 2018), and organizational support factors (Adebayo and Nwabuoku, 2008; Madden et al., 2015; Perryer, 2010), research has consistently shown that job attitudes play a significant role in influencing both turnover intentions and absenteeism (Punnett et al., 2007; Wegge, 2007; Maynard

et al., 2006; Shahnawaz and Jafri, 2009). Job attitudes that are being examined in this research are organizational commitment and job involvement.

This study aims to advance insights into the relationship between job attitudes and withdrawal behaviors, specifically absenteeism and turnover intentions, thereby contributing to the literature in several ways. First, although the relationship between job attitudes and withdrawal behaviors has been extensively researched, studies exploring the link between organizational commitment and job involvement with absenteeism and turnover intentions remain relatively scarce. Second, while research on these behaviors is common in various sectors and industries, they are notably rare within the hotel and tourism sectors, where only a few studies have been conducted. Third, the significance of implementing human resource practices to manage absenteeism and turnover intentions is still insufficiently emphasized. Finally, no previous studies exploring absenteeism and turnover intentions within the tourism and hotel industry have been identified in Croatia, a country that generates 14.6 billion EUR from tourism and where the dependence on this sector is particularly pronounced.

Based on the above, following hypotheses have been proposed:

- *H1: Organizational commitment is negatively related to absenteeism.*
- *H1a: Affective commitment is negatively related to absenteeism.*
- *H1b: Continuance commitment is negatively related to absenteeism.*
- *H1c: Normative commitment is negatively related to absenteeism.*
- *H2: Organizational commitment is negatively related to turnover intentions.*
- *H2a: Affective commitment is negatively related to turnover intentions.*
- *H2b: Continuance commitment is negatively related to turnover intentions.*
- *H2c: Normative commitment is negatively related to turnover intentions.*
- *H3: Job involvement is negatively related to absenteeism.*
- *H4: Job involvement is negatively related to turnover intentions.*
- *H5: Organizational commitment and job involvement are positively related.*

This research paper is organized in the following way. The paper begins with the Literature review and hypothesis development section, where key theories and previous studies are discussed to establish a foundation for the current research and formulate hypotheses. The Research methodology section explains the methodological framework, including the design and approach of the study, the data collection process, the sample characteristics, instruments, and scales used to assess the primary research. The Analysis section deals with the statistical techniques used to examine the data. The Results and Discussion section presents the findings,

interprets their implications, and integrates them with existing literature. The paper concludes with the Conclusion section, which summarizes the key insights, gives practical implications for management, acknowledges the study's constraints, and suggests some recommendations for further studies in this field.

2. Literature review and hypothesis development

This section provides an insight into the concepts of organizational commitment and job involvement, two attitudes that are explored in this paper. The third subsection offers an overview of recent studies on the relationship between these attitudes and absenteeism and turnover intentions. Based on previous research, hypotheses are defined at the end of the chapter.

2.1. Organizational commitment

Traditionally, organizational commitment has been conceptualized and measured in various ways. Authors agree that organizational commitment is a multidimensional construct and the antecedents, correlates, and consequences of commitment vary across dimensions (Meyer et al., 2002). Despite this, the classification of commitment in three distinguishable components – affective, continuance and normative, developed in the 1990s by Allen and Meyer (1990), continues to serve as a foundation for many studies. According to this classification, the affective component of organizational commitment refers to employees' emotional attachment to, identification with, and involvement in, the organization. The continuance component addresses commitment based on the costs that employees associate with leaving the organization, while the normative component refers to employees' feelings of obligation to remain with the organization (Allen and Meyer, 1990). Organizational commitment however can be a result of a combination of two or three mentioned aspects of commitment, i.e., it does not necessarily have to be based on only one component. According to Maslić Seršić (2000), one individual may simultaneously feel a strong emotional connection (affective component) but also an obligation to stay in the organization (normative component), while another employee may be satisfied with his job (affective component) but also aware that leaving the organization would be complicated and incur some costs (instrumental component). The intensity of each component, therefore, depends on the individual, his personal values and needs.

Recent studies about organizational commitment are oriented at the COVID-19 crisis (Chanana, 2021; Sokal et al., 2021), improvement of employee performance (Ridwan et al., 2020), emotional intelligence and quality of work life (Sudiro et al., 2023).

2.2. Job involvement

The main stream of research about the job involvement has been derived from the work of Lodahl and Kejner (1965) and Kanungo (1982). Job involvement refers to the psychological identification and participation of an individual in their work (Morrow, 1983). It encompasses the extent to which an individual is personally engaged to their job tasks and responsibilities. It is important to differentiate between work involvement and job involvement. Work involvement, influenced by the process of early socialization, pertains to an individual's values regarding work and its benefits. In contrast, job involvement is specifically tied to an individual's current employment situation and depends on the degree to which it meets their current needs (Brown, 1996).

In newer studies, job involvement is being researched between millennial workers (Tapia-Andino and Barcellos-Paula, 2023) and is often being put in relation with different types of leadership (Zia et al., 2022; Xu et al., 2022).

2.3. The relationship between organizational commitment, job involvement and withdrawal behaviors

Organizational commitment and job involvement serve as precursors to employee withdrawal behaviors, specifically sickness absenteeism and turnover intentions. Sickness absence is the most common form of absenteeism and it refers to the pattern of missing work in which an employee is absent from work owing to sickness and health complaints (van Ruysseveldt et al. 2024). Absenteeism can be caused by various determinants, which can be categorized to personal, demographic, attitudinal, health-related, organizational, and job determinants (Čikeš et al., 2018). While absenteeism is a way of 'escaping' the work context temporarily, turnover intentions indicate the inclination of an employee to withdraw from the organization definitely (Schaufeli et al., 2009). Turnover intention has been defined as the conscious and deliberate willingness to leave the organization, and is considered the last in a sequence of withdrawal cognitions (van Ruysseveldt et al., 2023).

In 1987, Blau and Boal conceptualized that job involvement and organizational commitment have been used to predict general turnover and absenteeism. Further empirical studies confirmed the relationship between these job attitudes and absenteeism and/or turnover as their determinants (Cheloha and Farr, 1980, Somers, 1995; Johns, 2001; Luchak and Gellatly, 2007). The higher the organizational commitment and job involvement are, the lower absenteeism is (Ho et al., 2012, Davey et al., 2009). Organizational commitment has been found to have a negative association with turnover intentions, suggesting that employees who are more emotionally and psychologically attached to their organizations are less likely to

have intention to leave (Yan et al., 2021). When it comes to a relationship between job involvement and organizational commitment, studies have shown that a positive relationship exists between these variables (Mathieu and Zajac, 1990; Saxena and Saxena, 2015). The higher organizational commitment is, the higher is employees' job involvement.

Following these findings, we propose these hypotheses:

- *H1: Organizational commitment is negatively related to absenteeism,*
- *H1a: Affective commitment is negatively related to absenteeism,*
- *H1b: Continuance commitment is negatively related to absenteeism,*
- *H1c: Normative commitment is negatively related to absenteeism,*
- *H2: Organizational commitment is negatively related to turnover intentions,*
- *H2a: Affective commitment is negatively related to turnover intentions,*
- *H2b: Continuance commitment is negatively related to turnover intentions,*
- *H2c: Normative commitment is negatively related to turnover intentions,*
- *H3: Job involvement is negatively related to absenteeism,*
- *H4: Job involvement is negatively related to turnover intentions, and*
- *H5: Organizational commitment and job involvement are positively related.*

3. Methodology

This section outlines the methodology of a study focused on exploring the relationship between job attitudes and withdrawal behaviors—specifically absenteeism and turnover intentions—within the Croatian hotel industry. The data collection process, measurement techniques, and the methods used for data processing are thoroughly explained and illustrated.

3.1. Procedure and sampling

The primary research was conducted in Croatia, during April and May 2019. The questionnaire was distributed among hotel employees within randomly selected hotels throughout the country.

In the context of this research, employees of the Croatian hotel industry are those employed in business entities classified in the category 55.10 Hotels and similar accommodation, of the Croatian National Classification of Business Activities (i.e., NKD). The number of employees taken into consideration for accessing sampling

(the population) is set for the year 2018. According to the Croatian Chamber of Commerce data, Croatia had 31.703 employees who worked in 1.183 hotel entities. To estimate the sample size, an a priori power analysis was conducted, using the G*Power 3.1 program (Faul et al., 2009). Based on an alpha error of the study of 0.05 and a power of 0.95, a sample size required 312 participants.

The process of data collection had several steps. First, we randomly selected 100 hotel entities from the Croatian Ministry of Tourism and Sport data (2019). After that, we asked permission from the hotel entity Director and/or Board of Directors to collect the data from their employees. In total, 2338 questionnaires were distributed by e-mail or the courier/Human resource management department, depending on how the hotel entity management requested. Finally, 734 usable questionnaires were returned, which presents a response rate of 37.11% for the case where both a) the hotel entity Director and/or Board of Directors, and b) their employees, agreed to participate. After fulfilling the survey, employees who received the questionnaire in person sealed their answers in an envelope in order to ensure anonymity and confidentiality.

3.2. Measurements

Demographic and labor variables were gender, age, total length of service, length of service in the current company, level of education (low, medium, high) and type of working contract (part-time, full-time). Low educational level was defined as completing the primary school and vocational secondary school; medium education was defined as completing high school and high education was defined as completing university or PhD.

Dependent variables. Absenteeism was measured by self-reported sickness-absence frequency in the past 12 months. Absence frequency refers to the number of absence spells per person per year, irrespective of their duration (Chadwick-Jones et al., 1971). Sickness absence did not include the days of absence regarding maternity or parental leave. The intention to leave the organization was measured by two items from Dawley et al. (2010): *I will likely look for another job in the next twelve months.* and *I will likely look for another job in the next three years.*, and evaluated on a Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Independent variables. An original organizational commitment scale by Meyer et al. (1993) was previously translated in Croatian by Maslić Seršić (2000) and was used in this study. The questionnaire consisted of three subscales that measure affective, continuance and normative commitment. As a measure for job involvement, ten items from Kanungo (1982) were used. All items for independent variables were assessed using a five-point Likert-type scale (strongly disagree=1 to strongly agree=5).

Items with no previous translation were translated into Croatian using the double-blind back translation method. In order to test the survey elements, an exploratory factor analysis was conducted. Survey items and the results of the exploratory factor analysis are reported in Table 1. First, Kaiser–Meyer–Olkin (KMO) and Bartlett’s test of sphericity were used to test the suitability of items for factor analysis. KMO values were: 0.735 for affective commitment, 0.842 for continuance commitment, 0.858 for normative commitment, and 0.919 for job involvement, all exceeding the recommended value of above 0.5 (Kaiser, 1974). Bartlett’s test of sphericity was significant for all constructs, with a p-value of <0.001. Further, principal components with eigenvalues greater than 1.0 and a varimax rotation for factor loadings were used to decide on the number of factors for every construct. Analysis extracted two factors for affective commitment, named joy affect factor and attachment affect factor, as previously elaborated by Bergami and Bagozzi (2000), and one factor for continuance and normative commitment, as well as for job involvement. Items with a factor loading lower than 0.6 were extracted from further analysis (one from the normative commitment scale and three from the job involvement scale). The KMOs for new factor structures were 0.850 for normative commitment ($p < 0.001$) and 0.922 for job involvement ($p < 0.001$). Cronbach’s alpha showed excellent internal consistency for job involvement, good consistency for affective commitment – joy, continuance, and normative commitment; and questionable consistency for affective commitment – attachment (George and Mallery, 2003).

Table 1: Results of exploratory factor analysis

Items	Factor loading	Eigen value	Variance explained (%)	Reliability
<i>Affective commitment – overall</i>			68.295	0.731
<i>Affective commitment – factor joy</i>		2.647	44.110	0.828
This organization has a great deal of personal meaning for me.	0.875			
I really feel as if this organization’s problems are my own.	0.837			
I would be very happy to spend the rest of my career with this organization.	0.853			
<i>Affective commitment – factor attachment</i>		1.451	24.185	0.684
I do not feel like ‘part of the family’ at my organization.*	0.791			
I do not feel ‘emotionally attached’ to this organization.*	0.776			
I do not feel a strong sense of belonging to my organization.*	0.755			

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Items	Factor loading	Eigen value	Variance explained (%)	Reliability
<i>Continuance commitment</i>		3.283	54.712	0.833
Right now, staying with my organization is a matter of necessity as much as desire.	0.610			
If I had not already put so much of myself into this organization, I might consider working elsewhere.	0.755			
One of the few negative consequences of leaving this organization would be the scarcity of available alternatives.	0.718			
It would be very hard for me to leave my organization right now, even if I wanted to.	0.766			
Too much of my life would be disrupted if I decided I wanted to leave my organization now.	0.828			
I feel that I have too few options to consider leaving this organization.	0.742			
<i>Normative commitment</i>		3.181	63.628	0.856
I would not leave my organization right now because I have a sense of obligation to the people in it.	0.739			
I owe a great deal to my organization.	0.816			
Even if it were to my advantage, I do not feel it would be right to leave my organization now.	0.855			
I would feel guilty if I left my organization now.	0.829			
This organization deserves my loyalty.	0.743			
<i>Job involvement</i>		4.565	65.217	0.910
The most important things that happen to me involve my present job.	0.749			
I live, eat and breathe my job.	0.828			
Most of my interests are centered around my job.	0.878			
I have very strong ties with my present job which would be very difficult to break.	0.846			
Most of my personal life goals are job-oriented.	0.840			
I consider my job to be very central to my existence.	0.778			
I like to be absorbed in my job most of the time.	0.724			

Note: *reverse-coded items

Source: Author's calculation

After factor analysis, the median split was used to create categorical variables for all independent and dependent variables. All values on the variables at or below the median are categorized as low and all values above the median are categorized as high (Table 2).

Table 2: Median values for dependent and independent variables

Variable	Median
Affective commitment – joy	3.67
Affective commitment – attachment	3.33
Continuance commitment	3.17
Normative commitment	3.2
Job involvement	3.28
Absenteeism frequency	0
Turnover intention (in 1 year)	2
Turnover intention (in 3 years)	2

Source: Author's calculation

3.3. Analysis

Descriptive statistics were used to summarize the demographic, dependent and independent variables. The Shapiro-Wilk test indicated that the data were not normally distributed ($p < 0.05$). To examine the differences between groups, Mann-Whitney U test was conducted. The association between variables was assessed using the Chi-square test of independence. Logistic regression was utilized to estimate the relationship between dependent and independent variables. SPSS version 23 was used for data analysis.

4. Results and discussion

In total, 734 employees participated in the study (37.1%). Most of the participants were women (60.9%). The median was 38 years. Most of the participants had a medium level of education (38.6%), followed by high (31.6%) and low education (29.8%). A total of 63.5% of employees had a full-time contract. At the time of filling out the survey, most employees (53.3%) worked in the current company for more than 5 years, while 56.3% of them had more than 10 years of overall experience. Most employees reported low commitment to the organization (50.7% for affective commitment – joy; 67.3% for affective commitment – attachment; 77.1% for continuance commitment; 77.4% for normative commitment) and

low job involvement (73.8%). In total, high absenteeism was reported by 33.8% of participants. The proportion of employees with a high intention to leave the organization within the next 1 year was 37.3% and within the next 3 years was 49.4%.

The Mann-Whitney U test indicated a statistically significant difference in age with respect to absenteeism frequency ($p=0.011$) and turnover intentions for both the next 1 year ($p<0.001$) and the next 3 years ($p<0.001$), as detailed in Table 3. The median age of employees with high absenteeism frequency is 35 years (20-65), which is lower compared to 39 years (19-65) for those in the low absenteeism frequency group. Similarly, younger employees demonstrate higher turnover intentions, with a median age of 34 years (19-65) in the high turnover intention group, compared to 39 years (20-65) for the next 1 year, and 41 years (20-65) for those planning to leave in the next 3 years. These findings indicate that younger employees are significantly more likely to be absent from work and to demonstrate greater turnover intentions. Further, results of the test showed that no statistical difference was found between absenteeism frequency and the length of service, but a statistically significant difference exists when observing turnover intentions and total length of service ($p=0.000$), as well as the length of service in the current company ($p=0.000$). Employees with high turnover intentions, both in 1 year and in 3 years, generally had lower median total years of service (10 (1-40) for 1 year and 9 (1-40) for 3 years) than employees with low turnover intentions (15 (1-45) for 1 year and 18 (1-45) for 3 years). Also, median years of service in the current company was lower among employees with a high turnover intention (5 (1-40) for 1 and 3 years) than employees who had low turnover intentions (8 (1-43) for 1 year and 9 (1-43) in 3 years). The analysis reveals a pattern in which employees with fewer total years of service report higher turnover intentions, whether considering leaving within one or three years, compared to those with more years of service, who show lower intentions to leave (Table 3).

Table 3: Results of Mann-Whitney U test

Variable	Absenteeism frequency			Turnover intention (in 1 year)			Turnover intention (in 3 years)		
	Low	High	<i>p</i> -value	Low	High	<i>p</i> -value	Low	High	<i>p</i> -value
	Med (range)	Med (range)		Med (range)	Med (range)		Med (range)	Med (range)	
Age	39 (19-65)	35 (20-65)	0.011	39 (20-65)	34 (19-65)	0.000	41 (20-65)	34 (19-65)	0.000
Total length of service (in years)	15 (1-45)	11.5 (1-45)	0.072	15 (1-45)	10 (1-40)	0.000	18 (1-45)	9 (1-40)	0.000
Length of service in the current company (in years)	7 (1-43)	5 (1-40)	0.165	8 (1-43)	5 (1-40)	0.000	9 (1-43)	5 (1-40)	0.000

Source: Author's calculation

The chi-square test indicated a statistically significant difference in absenteeism frequency among employees based on their management level ($\chi^2 = 12.148$, $df = 3$, $p = 0.007$), as indicated in Table 4.

Table 4: Results of Chi-square test of independence for absenteeism frequency

Variable	Absenteeism frequency			χ^2	df	p -value
	Total n (%)	Low n (%)	High n (%)			
<i>Gender</i>				1.503	1	0.220
Female	438 (60.9)	283 (59.3)	155 (64.0)			
Male	281 (39.1)	194 (40.7)	87 (36.0)			
<i>Type of working contract</i>				0.608	1	0.436
Full-time	457 (63.5)	298 (62.5)	159 (65.4)			
Part-time	263 (36.5)	179 (37.5)	84 (34.6)			
<i>Level of education</i>				1.310	2	0.520
Low	217 (29.8)	137 (28.4)	80 (32.5)			
Medium	281 (38.6)	190 (39.4)	91 (37.0)			
High	230 (31.6)	155 (32.2)	75 (30.5)			
<i>Member of management level</i>				12.148	3	0.007
No	515 (72.5)	325 (68.7)	190 (80.2)			
Yes, lower-level management	120 (16.9)	88 (18.6)	32 (13.5)			
Yes, middle-level management	62 (8.7)	51 (10.8)	11 (4.6)			
Yes, top-level management	13 (1.8)	9 (1.9)	4 (1.7)			
<i>Affective commitment – joy</i>				9.085	1	0.003
Low	372 (50.7)	227 (46.7)	145 (58.5)			
High	362 (49.3)	259 (53.3)	103 (41.5)			
<i>Affective commitment – attachment</i>				0.264	1	0.607
Low	494 (67.3)	324 (66.7)	170 (68.5)			
High	240 (32.7)	162 (33.3)	78 (31.5)			
<i>Continuance commitment</i>				0.053	1	0.818
Low	566 (77.1)	376 (77.4)	190 (76.6)			
High	168 (22.9)	110 (22.6)	58 (23.4)			
<i>Normative commitment</i>				10.160	1	0.001
Low	568 (77.4)	359 (73.9)	209 (84.3)			
High	166 (22.6)	127 (26.1)	39 (15.7)			
<i>Job involvement</i>				0.260	1	0.610
Low	542 (73.8)	356 (73.3)	186 (75.0)			
High	192 (26.2)	130 (26.7)	62 (25.0)			

Source: Author's calculation

Among the employees with low absenteeism frequency, most of them (68.7%) are not part of management, 18.6% of them belong to the lower-level, 10.8% to the middle-level, and 1.9% to the top-level management. In the group of employees with high absenteeism frequency, 80.2% of them don't belong to hotel management. Employees within top-level management have the lowest frequency of high absenteeism, at 1.7%. These findings suggest that absenteeism is less prevalent among management, particularly top-level management, potentially due to higher levels of responsibility.

A statistically significant difference exists in absenteeism frequency among groups with different levels of affective commitment – joy ($\chi^2 = 9.085$, $df = 1$, $p = 0.003$). Among employees with high absenteeism frequency, 58.5% demonstrate low affective commitment. Conversely, in a group of employees with low absenteeism frequency, 53.3% reported high affective commitment. There is also a statistically significant difference in absenteeism frequency between groups with varying levels of normative commitment ($\chi^2 = 10.160$, $df = 1$, $p = 0.001$). Among employees with low absenteeism frequency, 73.9% exhibit low normative commitment. In contrast, a higher proportion of employees with high absenteeism frequency, 84.3%, demonstrate high normative commitment. No statistical significance in a chi-square test was found between absenteeism and the following variables: gender, type of working contract, level of education, affective commitment – attachment, continuance commitment, and job involvement. This indicates that the observed differences between the groups are likely due to random chance rather than a meaningful association between the variables.

When observing turnover intentions between employees, statistically significant differences were found in regard to their working contract type (in 1 year: $\chi^2 = 15.576$, $df = 1$, $p < 0.000$; and 3 years: $\chi^2 = 20.463$, $df = 1$, $p < 0.000$) and their management level (in 1 year: $\chi^2 = 14.295$, $df = 3$, $p = 0.003$; and 3 years: $\chi^2 = 11.481$, $df = 3$, $p = 0.009$), as detailed in Table 5.

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Table 5: Results of Chi-square test of independence for turnover intentions in 1 and 3 years

Variable	Turnover intention (in 1 year)					Turnover intention (in 3 years)						
	Total n (%)	Low n (%)	High n (%)	X ²	df	p-value	Total n (%)	Low n (%)	High n (%)	X ²	df	p-value
<i>Gender</i>												
Female	437 (61.0)	282 (63.2)	155 (57.4)	2.396	1	0.122	436 (60.9)	224 (62.7)	212 (59.1)	1.025	1	0.311
Male	279 (39.0)	164 (36.8)	115 (42.6)				280 (39.1)	133 (37.3)	147 (40.9)			
<i>Type of working contract</i>												
Full-time	457 (63.7)	312 (69.2)	145 (54.5)	15.576	1	0.000	456 (63.6)	260 (71.6)	196 (55.4)	20.463	1	0.000
Part-time	260 (36.3)	139 (30.8)	121 (45.5)				261 (36.4)	103 (28.4)	158 (44.6)			
<i>Level of education</i>												
Low	215 (29.7)	130 (28.7)	85 (31.3)	0.546	2	0.761	214 (29.5)	110 (30.1)	104 (28.9)	3.158	2	0.206
Medium	280 (38.6)	178 (39.3)	102 (37.5)				281 (38.8)	150 (41.1)	131 (36.4)			
High	230 (31.7)	145 (32.0)	85 (31.3)				230 (31.7)	105 (28.8)	125 (34.7)			
<i>Member of management level</i>												
No	513 (72.6)	298 (67.9)	215 (80.2)	14.295	3	0.003	512 (72.4)	237 (67.1)	275 (77.7)	11.481	3	0.009
Yes, lower-level management	119 (16.8)	83 (18.9)	36 (13.4)				120 (17.0)	68 (19.3)	52 (14.7)			
Yes, middle-level management	62 (8.8)	49 (11.2)	13 (4.9)				62 (8.8)	41 (11.6)	21 (5.9)			
Yes, top-level management	13 (1.8)	9 (2.1)	4 (1.5)				13 (1.8)	7 (2.0)	6 (1.7)			
<i>Affective commitment – joy</i>												
Low	370 (50.6)	173 (37.8)	197 (72.2)	80.920	1	0.000	370 (50.6)	123 (33.2)	247 (68.4)	90.460	1	0.000
High	361 (49.4)	285 (62.2)	76 (27.8)				361 (49.4)	247 (66.8)	114 (31.6)			
<i>Affective commitment – attachment</i>												
Low	491 (67.2)	264 (57.6)	227 (83.2)	50.468	1	0.000	491 (67.2)	204 (55.1)	287 (79.5)	49.194	1	0.000
High	240 (32.8)	194 (42.4)	46 (16.8)				240 (32.8)	166 (44.9)	74 (20.5)			
<i>Continuance commitment</i>												
Low	563 (77.0)	327 (71.4)	236 (86.4)	21.886	1	0.000	564 (77.2)	248 (67.0)	316 (87.5)	43.597	1	0.000
High	168 (23.0)	131 (28.6)	37 (13.6)				167 (22.8)	122 (33.0)	45 (12.5)			
<i>Normative commitment</i>												
Low	565 (77.3)	319 (69.7)	246 (90.1)	40.791	1	0.000	566 (77.4)	243 (65.7)	323 (89.5)	59.212	1	0.000
High	166 (22.7)	139 (30.3)	27 (9.9)				165 (22.6)	127 (34.3)	38 (10.5)			
<i>Job involvement</i>												
Low	539 (73.7)	296 (64.6)	243 (89.0)	52.505	1	0.000	539 (73.7)	221 (59.7)	318 (88.1)	75.878	1	0.000
High	192 (26.3)	162 (35.4)	30 (11.0)				192 (26.3)	149 (40.3)	43 (11.9)			

Source: Author's calculation

In a group of employees with low turnover intentions within one year, 69.2% are full-time employees, compared to 30.8% who are part-time employees. Similar proportions are observed with respect to turnover intentions over three years, with 71.6% being full-time and 28.4% part-time employees. Furthermore, the majority of employees with high turnover intentions are under full-time contracts, accounting for 54.5% of those intending to leave within one year and 55.4% within three years. Regarding group differences between turnover intentions and management level, findings suggest that these intentions are generally less pronounced among managers, particularly in top management, for both low and high turnover intentions, regardless of the time period. There is also statistically significant difference in turnover intentions and affective commitment – joy (in 1 year: $\chi^2 = 80.920$, $df = 1$, $p < 0.000$; and 3 years: $\chi^2 = 90.460$, $df = 1$, $p < 0.000$). Among employees with high turnover intentions, 72.2% demonstrate low affective commitment over a 1-year period and 68.4% over a 3-year period. In contrast, those with low turnover intentions tend to show higher affective commitment, 62.2% for the 1-year period and 66.8% for the 3-year period falling into this category. Statistically significant differences were also found between turnover intentions and the following variables: affective commitment – attachment (in 1 year: $\chi^2 = 50.468$, $df = 1$, $p < 0.000$; and 3 years: $\chi^2 = 49.194$, $df = 1$, $p < 0.000$), continuance commitment (in 1 year: $\chi^2 = 21.886$, $df = 1$, $p < 0.000$; and 3 years: $\chi^2 = 43.597$, $df = 1$, $p < 0.000$), normative commitment (in 1 year: $\chi^2 = 40.791$, $df = 1$, $p < 0.000$; and 3 years: $\chi^2 = 59.212$, $df = 1$, $p < 0.000$) and job involvement (in 1 year: $\chi^2 = 52.505$, $df = 1$, $p < 0.000$; and 3 years: $\chi^2 = 75.878$, $df = 1$, $p < 0.000$). In a group of employees with low turnover intentions for both periods of time, most of them reported lower levels of affective commitment – attachment, continuance commitment, normative commitment, and job involvement. However, among employees with higher turnover intentions, a larger proportion also reported low levels of these three components of commitment and job involvement. Finally, no statistically significant association was found between turnover intentions, both in the next 1 year and in 3 years, and the variables of gender and level of education based on the chi-square test.

In order to test the hypothesis, we applied logistic regression. The results are shown in Table 6. Negative relationships were found between absenteeism and: affective commitment – joy (OR = 0.623, 95%CI = 0.457-0.848, $p = 0.003$) and normative commitment (OR = 0.527, 95%CI = 0.355-0.785, $p = 0.002$). Significant relation between affective commitment – attachment and absenteeism were not found. Employees with high affective commitment (joy) are 1.6 times less likely to be absent from work than those with low affective commitment (joy). These findings partially confirm *H1a*. Individuals with high normative commitment are 1.9 times less likely to be absent from work compared to employees with low normative commitment, confirming *H1c*. No statistical significance was found between absenteeism and continuance commitment, which contradicts *H1b*. Following these

findings, hypothesis *H1* is partially confirmed. *H3* is being rejected because no relationship was found between absenteeism and job involvement. Allen and Meyer (2000) also found affective commitment to be negatively related to absenteeism, but no relation with absenteeism was found between continuance and normative commitment. Direct effects of job involvement on absenteeism were also not supported in some other previous studies (Brooke and Price, 1989).

Table 6: Results of logistic regression

Variable	Absenteeism frequency		Turnover intention (in 1 year)		Turnover intention (in 3 years)		Job involvement	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Affective commitment – joy	0.623***	0.457-0.848	0.234***	0.169-0.324	0.230***	0.169-0.313	9.688***	6.290-14.921
Affective commitment – attachment	0.918***	0.661-1.274	0.276***	0.191-0.398	0.317***	0.228-0.440	2.300***	6.290-14.921
Continuance commitment	1.043	0.726-1.500	0.391***	0.262-0.585	0.289***	0.198-0.423	4.887***	3.375-7.075
Normative commitment	0.527***	0.355-0.785	0.252***	0.161-0.393	0.225***	0.151-0.335	9.517***	6.447-14.049
Job involvement	0.913	0.643-1.296	0.226***	0.147-0.345	0.201***	0.137-0.293		

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Source: Author's calculation

In regard to turnover intentions in 1 year, negative relationships were found in regards to all dependent variables: affective commitment – joy (OR = 0.234, 95%CI = 0.169-0.324, $p < 0.000$), affective commitment – attachment (OR = 0.276, 95%CI = 0.191-0.398, $p < 0.000$), continuance commitment (OR = 0.391, 95%CI = 0.262-0.585, $p < 0.000$), normative commitment (OR = 0.252, 95%CI = 0.161-0.393, $p < 0.000$) and job involvement (OR = 0.226, 95%CI = 0.147-0.345, $p < 0.000$). Also, turnover intentions in 3 years are significantly negatively affected by: affective commitment – joy (OR = 0.230, 95%CI = 0.169-0.313, $p < 0.000$), affective commitment – attachment (OR = 0.317, 95%CI = 0.228-0.440, $p < 0.000$), continuance commitment (OR = 0.289, 95%CI = 0.198-0.423, $p < 0.000$), normative commitment (OR = 0.225, 95%CI = 0.151-0.335, $p < 0.000$) and job involvement (OR = 0.201, 95%CI = 0.137-0.293, $p < 0.000$). The highest impact has job involvement, followed by normative, affective commitment – joy, continuance commitment and affective commitment – attachment. These findings support the hypothesis *H2* and *H4*, as well as the sub-hypothesis *H2a*, *H2b* and *H2c*. It is more likely that hotel employees with higher organizational commitment

and job involvement will have lower intentions to leave regardless of the period of time, compared to employees with lower levels of organizational commitment and job involvement.

Similar findings regarding the relation between organizational commitment and withdrawal behaviors were found by Somers (1995), indicating that affective commitment emerged as the most consistent predictor of absenteeism and turnover; normative commitment was related only to withdrawal intentions and no direct effects for continuance commitment and absenteeism or turnover intentions were observed. Also, Tsousoglou et al. (2022) found organizational commitment to be predictor of turnover intentional behavior among lodging industry employees.

All three dimensions of organizational commitment had a significantly positive effect on job involvement: the highest impact had affective commitment – joy (OR = 9.688, 95%CI = 6.290-14.921, $p < 0.000$), followed by normative commitment (OR = 9.517, 95%CI = 6.447-14.049, $p < 0.000$), continuance commitment (OR = 4.887, 95%CI = 3.375-7.075, $p < 0.000$) and affective commitment – attachment (OR = 2.300, 95%CI = 1.641-3.240, $p < 0.000$). These findings are confirming *H5*. The higher the employees' commitment is, the higher is their job involvement. This validation is also analogous to past findings on the effect of job involvement on organizational commitment (Ćulibrk et al., 2018).

5. Conclusions

The aim of this study was to enhance understanding of the relationship between job attitudes and withdrawal behaviors, specifically absenteeism and turnover intentions. Empirical research has shown that employees with higher organizational commitment and greater job involvement tend to have lower rates of absenteeism and fewer turnover intentions. Furthermore, employees who demonstrate high levels of organizational commitment are also highly engaged in their jobs.

This paper has several theoretical, empirical, and practical contributions. First, while organizational commitment, job involvement, absenteeism, and turnover intentions have been extensively researched separately, both theoretically and empirically, international literature and Croatian scientific and professional practice feature only a limited number of studies addressing the relation between these attitudes and withdrawal behaviors and our paper is fulfilling this gap. Second, this represents the first known study to examine withdrawal behaviors in the Croatian hotel industry, a sector of crucial importance for the whole economy. Third, the insights gained from this study have broader implications beyond the hotel industry and can be applied to various sectors. Understanding how absenteeism and turnover intentions are influenced by job attitudes is crucial for improving organizational outcomes across different industries. Finally, theoretical and empirical insights

into how absenteeism can be influenced by managing employees' work attitudes are not sufficiently applied in practice, leading to the neglect of a significant and potent factor for managing organizational outcomes and success. These practices can include involving employees in decision-making, offering work-life balance programs, and improving working conditions, which can be particularly hard and challenging in the tourism sector. Since the highest rates of absenteeism and turnover intentions were found among younger employees and the ones who worked in a hotel for a shorter period of time, these groups require special focus. The new generation of workers, particularly Generation Z, exhibits unique characteristics and mindsets, showing less inclination to stay in a single job for their entire careers compared to previous generations (X and Y). Organizations across different sectors should therefore pay more attention to these employees, offering them different compensation and benefits, and involve them more extensively in management processes than in the past. Such measures are essential for improving job attitudes and, consequently, reducing withdrawal behaviors. Moreover, these strategies should be considered by policymakers to develop guidelines and policies that support employee retention and engagement on a broader scale. These strategies should be implemented at every management level within the hotel industry and beyond.

Our study has several limitations, and the first one is the use of self-reported absence data. Employees may underreport or over-report their absenteeism due to fear of consequences. Future studies might use the company-registered sickness absenteeism data. Further, this study may face limitations related to how absenteeism is defined and measured. We used sickness absence and measured it with frequency. Future studies may also use other forms of absenteeism. Additionally, our study included two job attitudes and two withdrawal behaviors. Future research could investigate other (and more) job attitudes to expand the findings of our research. Finally, future research should aim to estimate the costs of absenteeism in Croatia, which would provide a more comprehensive understanding of its economic impacts, both for the organizations and the whole country and to further emphasize the importance of effective management of withdrawal behaviors.

References

- Adebayo, S. O., Nwabuoku, U. C. (2008) "Conscientiousness and Perceived Organizational Support as Predictors of Employee Absenteeism", *Pakistan Journal of Social Sciences* [Internet], Vol. 5, No. 4, pp. 363–367. Available at: <adebayo_and_nwabuoku_1-libre.pdf> (d1wqtxts1xzle7.cloudfront.net)> [Accessed: May 2, 2024]
- Ahmad, A. (2018) "The Relationship Among Job Characteristics Organizational Commitment and Employee Turnover Intentions: A reciprocation perspective",

Vedrana Čikeš, Kristina Črnjar, Helga Maškarin Ribarić • *Effects of job attitudes...*
Zb. rad. Ekon. fak. Rij. • 2024 • Vol. 42 • No. 1 • 39–64

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- Journal of Work-Applied Management*, Vol. 10, No. 1, pp. 74–92, <https://doi.org/10.1108/JWAM-09-2017-0027>.
- Allen, N. J., Meyer, J. P. (1990) “The Measurement and Antecedents of Affective, Continuance and Normative Commitment to the Organization”, *Journal of occupational psychology*, Vol. 63, No. 1, pp. 1–18, <https://doi.org/10.1111/j.2044-8325.1990.tb00506.x>.
- Allen, N. J., Meyer, J. P., (2000) “Construct Validation in Organizational Behavior Research: The Case of Organizational Commitment”. In Goffin, R. D., Helmes, E., ed., *Problems and solutions in human assessment*, Boston, MA: Springer US, https://doi.org/10.1007/978-1-4615-4397-8_13.
- Barmby, T., Nolan, M., Winkelmann, R. (2001) “Contracted Workdays and Absence”, *The Manchester School*, Vol. 69, No. 3, pp. 269–275, <https://doi.org/10.1111/1467-9957.00247>.
- Beecroft, P. C., Dorey, F., Wenten, M. (2008) “Turnover Intention in New Graduate Nurses: A Multivariate Analysis”, *Journal of advanced nursing*, Vol. 62, pp. 41–52, <https://doi.org/10.1111/j.1365-2648.2007.04570.x>.
- Bergami, M., Bagozzi, R. P. (2000) “Self-categorization, Affective Commitment and Group Self-Esteem as Distinct Aspects of Social Identity in the Organization”, *British journal of social psychology*, Vol. 39, No. 4, pp. 555–577, <https://doi.org/10.1348/014466600164633>.
- Blau, G. J., Boal, K. B. (1987) “Conceptualizing How Job Involvement and Organizational Commitment Affect Turnover and Absenteeism”, *Academy of management review*, Vol. 12, No. 2, pp. 288–300, <https://doi.org/10.5465/amr.1987.4307844>.
- Brborovic, H., Brborovic, O., Mustajbegovic, J. (2016) “Looking for the Possible Association Between Stress, Presenteeism and Absenteeism Among Croatian Nurses: A Cross-Sectional Study”, *Iranian journal of psychiatry and behavioral sciences*, Vol. 10, No. 4, pp. 4587–4594, <https://doi.org/10.17795/ijpbs-4587>.
- Brooke Jr, P. P., Price, J. L. (1989) “The determinants of employee absenteeism: An empirical test of a causal model”, *Journal of occupational psychology*, Vol. 62, No. 1, pp. 1–19, <https://doi.org/10.1111/j.2044-8325.1989.tb00473.x>.
- Brown, S. P. (1996) “A Meta-analysis and Review of Organizational Research on Job Involvement”, *Psychological bulletin*, Vol. 120, No. 2, pp. 235–255, <https://doi.org/10.1037/0033-2909.120.2.235>.
- Chadwick-Jones, J. K. et al. (1971) “Absence Measures: Their Reusability and Stability in an Industrial Setting”, *Personnel psychology*, Vol. 24, No. 1, pp. 463–470. Available at: <https://www.researchgate.net/profile/Nigel-Nicholson-2/publication/229714019_Absence_Measures_Their_Reliability_and_Stability_in_an_Industrial_Setting/links/643fe8c71b8d044c6335ad73/Absence-Measures-Their-Reliability-and-Stability-in-an-Industrial-Setting.pdf> [Accessed: October 13, 2023]

- Chanana, N. (2021) “The Impact of COVID-19 Pandemic on Employees Organizational Commitment and Job Satisfaction in Reference to Gender Differences”, *Journal of Public Affairs*, Vol. 21, No. 4, <https://doi.org/10.1002/pa.2695>.
- Cheloha, R. S., Farr, J. L. (1980) “Absenteeism, Job Involvement, and Job Satisfaction in an Organizational Setting”, *Journal of Applied Psychology*, Vol. 65, No. 4, pp. 467–473, <https://doi.org/10.1037/0021-9010.65.4.467>.
- Croatian Bureau of Statistics (2024) *Aktivno stanovništvo u Republici Hrvatskoj u 2023. – prosjek godine* [Active population in the Republic of Croatia in 2023 – annual average] [Internet]. Available at: <<https://podaci.dzs.hr/media/g3eh2t5r/rad-2024-3-2-aktivno-stanovni%C5%A1tvo-u-republici-hrvatskoj-u-2023-prosjek-godine.pdf>> [Accessed: May 2, 2024]
- Croatian National Bank (2024) *Release of statistical data on the balance of payments, gross external debt position and international investment position for the fourth quarter of 2023* [Internet]. Available at: <<https://www.hnb.hr/en/-/objava-statistickih-podataka-o-platnoj-bilanci-stanju-bruto-inozemnog-duga-i-stanju-me-unarodnih-ulaganja-za-cetvrto-tromjesecje-2023->>> [Accessed: May 2, 2024]
- Ćulibrk, J. et al. (2018) “Job Satisfaction, Organizational Commitment and Job Involvement: The Mediating Role of Job Involvement”, *Frontiers in psychology*, Vol. 9, pp. 328–333, <https://doi.org/10.3389/fpsyg.2018.00132>.
- Čikeš, V., Maškarin Ribarić, H., Črnjar, K. (2018) “The Determinants and Outcomes of Absence Behavior: A Systematic Literature Review”, *Social Sciences*, Vol. 7, No. 8, p. 120, <https://doi.org/10.3390/socsci7080120>.
- Davey, M. M. et al. (2009) “Predictors of Nurse Absenteeism in Hospitals: A Systematic Review”, *Journal of nursing management*, Vol. 17, No. 3, pp. 312–330, <https://doi.org/10.1111/j.1365-2834.2008.00958.x>.
- Dawley, D., Houghton, J. D., Bucklew, N. S. (2010) “Perceived Organizational Support and Turnover Intention: The Mediating Effects of Personal Sacrifice and Job Fit”, *The Journal of social psychology*, Vol. 150, No. 3, pp. 238–257, <https://doi.org/10.1080/00224540903365463>.
- Faul, F. et al. (2009) “Statistical Power Analyses Using G* Power 3.1: Tests for Correlation and Regression Analyses”, *Behavior research methods*, Vol. 41, No. 4, pp. 1149–1160, <https://doi.org/10.3758/BRM.41.4.1149>.
- George, D., Mallery, P. (2003) *SPSS for Windows step by step: A simple guide and reference, 11.0 update*, 4th edition, Boston, MA: Allyn & Bacon.
- Hassard, J. et al. (2014) *Calculating the cost of work-related stress and psychosocial risks*. Luxembourg: Publications Office of the European Union, Available at: <<https://osha.europa.eu/sites/default/files/cost-of-work-related-stress.pdf>> [Accessed: May 5, 2024]
- Ho, C.-C. et al. (2012) “Work Values, Job Involvement, and Organizational Commitment in Taiwanese Nurses”, *International Journal of Psychology and*

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- Behavioral Sciences*, Vol. 2, No. 3, pp. 64–70, <https://doi.org/10.5923/j.ijpbs.20120203.02>.
- Johns, G. (2001) “The Psychology of Lateness, Absenteeism, and Turnover”. In Anderson, N. et al., ed., *Handbook of industrial, work, and organizational psychology*, London: Sage Publications Ltd, <https://doi.org/10.4135/9781848608368.n13>.
- Kaiser, H. F. (1974) “An Index of Factorial Simplicity”, *Psychometrika*, Vol. 39, pp. 31–36, <https://doi.org/10.1007/bf02291575>.
- Kim, S. S., Im, J., Hwang, J. (2015) “The Effects of Mentoring on Role Stress, Job Attitude, and Turnover Intention in the Hotel Industry”, *International Journal of Hospitality Management*, Vol. 48, pp. 68–82, <https://doi.org/10.1016/j.ijhm.2015.04.006>.
- Kim, S., Min Park, S. (2014) “Determinants of Job Satisfaction and Turnover Intentions of Public Employees: Evidence from US Federal Agencies”, *International Review of Public Administration*, Vol. 19, No. 1, pp. 63–90, <https://doi.org/10.1080/12294659.2014.887354>.
- Kolz, A. R. (1999) “Personality Predictors of Retail Employee Theft and Counterproductive Behavior”, *Journal of Professional Services Marketing*, Vol. 19, No. 2, pp. 107–114, https://doi.org/10.1300/J090v19n02_06.
- Labrague, L. J., Nwafor, C. E., Tsaras, K. (2020) “Influence of Toxic and Transformational Leadership Practices on Nurses’ Job Satisfaction, Job Stress, Absenteeism and Turnover Intention: A Cross-sectional Study”, *Journal of Nursing Management*, Vol. 28, No. 5, pp. 1104–1113, <https://doi.org/10.1111/jonm.13053>.
- Li, Y., Sawhney, R., Tortorella, G. L. (2019) “Empirical Analysis of Factors Impacting Turnover Intention among Manufacturing Workers”, *International Journal of Business and Management*, Vol. 14, No. 4, pp. 1–18, <https://doi.org/10.5539/ijbm.v14n4p1>.
- Luchak, A. A., Gellatly, I. R. (2007) “A Comparison of Linear and Nonlinear Relations Between Organizational Commitment and Work Outcomes”, *Journal of Applied Psychology*, Vol. 92, No. 3, pp. 786–793, <https://doi.org/10.1037/0021-9010.92.3.786>.
- Madden, L., Mathias, B. D., Madden, T. M. (2015) “In good company: The impact of perceived organizational support and positive relationships at work on turnover intentions”, *Management Research Review*, Vol. 38, No. 3, pp. 242–263, <https://doi.org/10.1108/MRR-09-2013-0228>.
- Maslić Seršić, D. (2000) “Što je odanost i kako je možemo mjeriti? [What is loyalty and how can we measure it?]”, *Suvremena psihologija* [Hard copy], Vol. 3, No. 1-2, pp. 99–111. Available at: <https://hrcak.srce.hr/3199> [Accessed: October 3, 2002]

- Mastekaasa, A. (2020) “Absenteeism in the Public and the Private Sector: Does the Public Sector Attract High Absence Employees??”, *Journal of Public Administration Research and Theory*, Vol. 30, No. 1, pp. 60–76, <https://doi.org/10.1093/jopart/muz003>.
- Mathieu, J. E., Zajac, D. M. (1990) “A Review and Meta-analysis of the Antecedents, Correlates, and Consequences of Organizational Commitment”, *Psychological bulletin*, Vol. 108, No. 2, pp. 171–194, <https://doi.org/10.1037//0033-2909.108.2.171>.
- Maynard, D. C., Joseph, T. A., Maynard, A. M. (2006) “Underemployment, Job Attitudes, and Turnover Intentions”, *Journal of Organizational Behavior*, Vol. 27, pp. 509–536, <https://doi.org/10.1002/job.389>.
- Meyer, J. P., Allen, N. J., Smith, C. A. (1993) “Commitment to Organizations and Occupations: Extension and Test of a Three-component Conceptualization”, *Journal of Applied Psychology*, Vol. 78, No. 4, pp. 538–551, <https://doi.org/10.1037//0021-9010.78.4.538>.
- Meyer, J. P. et al. (2002) “Affective, Continuance, and Normative Commitment to the Organization: A Meta-analysis of Antecedents, Correlates, and Consequences”, *Journal of vocational behavior*, Vol. 61, No. 1, pp. 20–52, <https://doi.org/10.1006/jvbe.2001.1842>.
- Mohsin, A., Brochado, A., Rodrigues, H. (2022) “Mind the Gap: A Critical Reflection on Hotel Employee Turnover”, *International Journal of Contemporary Hospitality Management*, Vol. 35, No. 7, pp. 2481–2495, <https://doi.org/10.1108/IJCHM-03-2022-0295>.
- Mukwevho, H., Nesamvuni, A. E., Roberson, J. R. (2020) “Factors Impacting Employee Absenteeism and the Managers’ Perception of its Causes in the Hotel Industry”, *African Journal of Hospitality, Tourism and Leisure*, Vol. 9, No. 5, pp. 1161–1177, <https://doi.org/10.46222/ajht.1.19770720-75>.
- Nowak, J. et al. (2023) “Presenteeism and Absenteeism in the Manufacturing Sector: A Multilevel Approach Identifying Underlying Factors and Relations to Health”, *Current Psychology*, Vol. 42, pp. 18641–18659, <https://doi.org/10.1007/s12144-022-03013-1>.
- Qiu, H. et al. (2015) “Exploring Antecedents of Employee Turnover Intention – Evidence of China’s Hotel Industry”, *Journal of China Tourism Research*, Vol. 11, No. 1, pp. 53–66, <https://doi.org/10.1080/19388160.2014.908756>.
- Perryer, C. et al. (2010) “Predicting Turnover Intentions: The Interactive Effects of Organizational Commitment and Perceived Organizational Support”, *Management Research Review*, Vol. 33, No. 9, pp. 911–923, <https://doi.org/10.1108/01409171011070323>.
- Pizam, A., Thornburg, S. W. (2000) “Absenteeism and Voluntary Turnover in Central Florida Hotels: A Pilot Study”, *International Journal of Hospitality Management*, Vol. 19, No. 2, pp. 211–217, [https://doi.org/10.1016/S0278-4319\(00\)00011-6](https://doi.org/10.1016/S0278-4319(00)00011-6).

- Punnett, B. J., Greenidge, D., Ramsey, J. (2007) “Job Attitudes and Absenteeism: A Study in the English Speaking Caribbean”, *Journal of World Business*, Vol. 42, No. 2, pp. 214–227, <https://doi.org/10.1016/j.jwb.2007.02.006>.
- Republic of Croatia, Ministry of Tourism and Sport (2019) *Popis kategoriziranih turističkih objekata u Republici Hrvatskoj (7. 3. 2019.)* [List of categorised tourist facilities in the Republic of Croatia (7. 3. 2019)] [Data-Internet], Available at: https://mint.gov.hr/UserDocsImages/AA_2018_c-dokumenti/190307_kategorizirani.xlsx.
- Ridwan, M., Mulyani, S. R., Ali, H. (2020) “Improving Employee Performance Through Perceived Organizational Support, Organizational Commitment and Organizational Citizenship Behavior”, *Systematic Reviews in Pharmacy* [Internet], Vol. 11, No. 12, pp. 839–849. Available at: <http://repository.upiypk.ac.id/3808/1/7.%20improving-employee-performance-through-perceived-organizational-support-organizational-commitment-and-organizational-cit.pdf> [Accessed: May 2, 2024]
- Samad, S. (2006) “The Contribution of Demographic Variables: Job Characteristics and Job Satisfaction on Turnover Intentions”, *Journal of International Management Studies* [Internet], Vol. 1, No 1, pp. 1–12. Available at: <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=986ca17bbaac8b3916382d1d291051447846d117>.
- Saxena, S., Saxena, R. (2015) “Impact of Job Involvement and Organizational Commitment on Organizational Citizenship Behavior”, *International Journal of Management and Business Research* [Internet], Vol. 5, No. 1, pp. 19–30. Available at: https://www.sid.ir/en/VEWSSID/J_pdf/1022220150103.pdf [Accessed: May 3, 2024]
- Schaufeli, W. B., Bakker, A. B., Van Rhenen, W. (2009) “How Changes in Job Demands and Resources Predict Burnout, Work Engagement, and Sickness Absenteeism”, *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, Vol. 30, pp. 893–917, <https://doi.org/10.1002/j.ob.595>.
- Scoppa, V. (2010) “Worker Absenteeism and Incentives: Evidence from Italy”, *Managerial and Decision Economics*, Vol. 31, No. 8, pp. 503–515, <https://doi.org/10.1002/mde.1504>.
- Seyrek, I. H., Turan, A. (2017) “Effects of Individual Characteristics and Work Related Factors on the Turnover Intention of Accounting Professionals”, *International Journal of Academic Research in Accounting, Finance and Management Sciences*, Vol. 7, No. 1, pp. 236–244, <https://doi.org/10.6007/IJARAFMS/v7-i1/2648>.
- Shahnawaz, M. G., Jafri, M. H. (2009) “Job attitudes as predictor of employee turnover among stayers and leavers/hoppers”, *Journal of Management Research* [Internet], Vol. 9, No. 3, pp. 159–166. Available at: https://www.researchgate.net/profile/Mohammad-Shahnawaz-11/publication/211393906_Job_Attitudes_

- as_Predictor_of_Employee_Turnover_among_Stayers_and_LeaversHoppers/
links/59280ed90f7e9b9979a21aa3/Job-Attitudes-as-Predictor-of-Employee-
Turnover-among-Stayers-and-Leavers-Hoppers.pdf> [Accessed: May 3, 2024]
- Smokrović, E. et al. (2022) “A Conceptual Model of Nurses’ Turnover Intention”, *International Journal of Environmental Research and Public Health*, Vol. 19, No. 13, p. 8205, <https://doi.org/10.3390/ijerph19138205>.
- Sokal, L., Trudel, L. E., Babb, J. (2021) “I’ve had it! Factors Associated with Burnout and Low Organizational Commitment in Canadian Teachers during the Second Wave of the COVID-19 Pandemic”, *International Journal of Educational Research Open*, Vol. 2, <https://doi.org/10.1016/j.ijedro.2020.100023>.
- Somers, M. J. (1995) “Organizational Commitment, Turnover and Absenteeism: An Examination of Direct and Interaction Effects”, *Journal of Organizational Behavior*, Vol. 16, pp. 49–58, <https://doi.org/10.1002/job.4030160107>.
- Störmer, S., Fahr, R. (2013) “Individual Determinants of Work Attendance: Evidence on the Role of Personality”, *Applied Economics*, Vol. 45, No. 19, pp. 2863–2875, <https://doi.org/10.1080/00036846.2012.684789>.
- Sudiro, A. et al. (2023) “Towards Emotional Intelligence and Quality of Work Life: Improving the Role of Work Attitude”, *Cogent Business & Management*, Vol. 10, No. 1, <https://doi.org/10.1080/23311975.2023.2189992>.
- Tapia-Andino, G. F., Barcellos-Paula, L. (2023) “Mediating Effect of the Adoption of Industry 4.0 Technologies on the Relationship between Job Involvement and Job Performance of Millennials”, *Administrative Sciences*, Vol. 13, No. 7, p. 159, <https://doi.org/10.3390/adms13070159>.
- Tsaousoglou, K., Koutoulas, D., Stavrinoudis, T. (2022) “Personality and Commitment as Predictors of Turnover Intentions among Greek Employees in the Lodging Industry”, *European Journal of Tourism Research*, Vol. 31, <https://doi.org/10.54055/ejtr.v31i.2296>.
- van Ruyseveldt, J. et al. (2023) “Job Characteristics, Job Attitudes and Employee Withdrawal Behaviour: A Latent Change Score Approach”, *Applied Psychology*, Vol. 72, No. 4, pp. 1449–1477, <https://doi.org/10.1111/apps.12448>.
- Walsh, M. J. (2021) *National Compensation Survey: Employee Benefits in the United States, March 2021*, Washington: US Bureau of Labor Statistics. Available at: <<https://roar-assets-auto.rbl.ms/documents/35985/employee-benefits-in-the-united-states-march-2021.pdf>> [Accessed: May 1, 2024]
- Wegge, J. et al. (2007) “Taking a Sickie: Job Satisfaction and Job Involvement as Interactive Predictors of Absenteeism in a Public Organization”, *Journal of occupational and organizational psychology*, Vol. 80, No. 1, pp. 77–89, <https://doi.org/10.1348/096317906X99371>.
- Xu, G. et al. (2022) “How Transformational Leadership Motivates Employee Involvement: The Roles of Psychological Safety and Traditionality”, *Sage Open*, Vol. 12, No. 1, <https://doi.org/10.1177/21582440211069967>.

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Zb. rad. Ekon. fak. Rij. • 2024 • Vol. 42 • No. 1 • 39–64

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- Yan, Z. et al. (2021) “How to Reduce Employees’ Turnover Intention from the Psychological Perspective: A Mediated Moderation Model”, *Psychology Research and Behavior Management*, Vol. 14, pp. 185–197, <https://doi.org/10.2147/PRBM.S293839>.
- Zia, M. Q. et al. (2022) “Transformational Leadership Promoting Employees’ Informal Learning and Job Involvement: The Moderating Role of Self-efficacy”, *Leadership & Organization Development Journal*, Vol. 43, No. 3, pp. 333–349, <https://doi.org/10.1108/LODJ-06-2021-0286>.

Efekti stavova prema radu na povlačenje s posla: dokazi iz hrvatskog hotelijerstva

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Sažetak

Hotelijerstvo, kao i drugi uslužni sektori, suočava se sa značajnim izazovima u upravljanju ponašanjima povlačenja s posla, zbog njihovog značajnog utjecaja na učinak i profitabilnost. Ovaj rad istražuje odnos između dva stava prema radu – odanosti organizaciji i zaokupljenosti poslom – i dva ponašanja povlačenja – apsentizma i namjere napuštanja. U istraživanju je korišten slučajni uzorak od 734 zaposlenika hotela u Hrvatskoj. Logistička regresijska analiza korištena je za predviđanje apsentizma i namjere napuštanja. Utvrđeni su statistički značajni odnosi između afektivne i normativne odanosti i apsentizma, kao i afektivne, normativne i instrumentalne odanosti i namjere napuštanja. Međutim, nije pronađen značajan učinak između zaokupljenosti poslom i apsentizma, iako postoji jaka i negativna veza između zaokupljenosti poslom i namjere napuštanja. Dodatno, identificiran je pozitivan odnos između zaokupljenosti poslom i svih komponenti odanosti organizaciji. Ovi rezultati mogu poslužiti kao temelj za upravljanje ljudskim resursima i procese donošenja odluka u hotelijerstvu, nudeći uvid u stavove zaposlenika i mogu poslužiti kao poticaj u stvaranju strategija za upravljanje nepoželjnim ponašanjem zaposlenika.

Ključne riječi: *apsentizam, namjere napuštanja, odanost organizaciji, zaokupljenost poslom, hotelijerstvo*

JEL klasifikacija: *J22, J63*

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