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Factors Affecting Well-Being and Work Activity in Italian Dental Hygienists During COVID-19 Emergency

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ABSTRACT

Objectives: The goal of this study was to assess the effect of the COVID 19 pandemic in terms of work-related stress on a sample of 424 Italian dental hygienists (rate response 98%). It was tested which factors may influence most the perception of stress among Italian dental hygienists, which coping strategies hygienists adopted, and which protective factors may help them to cope with stress.

Methods: Data were collected during a phase of moderate improvement of epidemiological conditions in Italy (Summer 2021—from June to September) through an online questionnaire, 424 questionnaires were considered for analysis.

Results: Results show a perception of good satisfaction among participants about their job, although the level of stress perception seems to be significant. They have also a perception of effective risk management in the workplace. The elements that seem to influence mostly work-related stress levels are associated to (1) repetitive movements and postural changes due to the use of mechanical tools; (2) the use of personal protective equipment (e.g., surgery masks, gloves, etc.); and (3) relations with patients. Results show that participants tend to implement coping strategies such as physical activity and/or spending time with family and/or friends, but it seems that at an organisational level, no systematic measures have been taken.

Conclusions: This study shows some protective factors that may help in coping with work-related stress, such as support from the dentist, a good work–life balance, role clarity with respect to the operational and professional role, the perception of self-efficacy at work, good integration into the teamwork and perceived support from colleagues.

1 | Introduction

There appears to be a lack of recent data affecting well-being among dental hygienists, particularly in Italian context. Although some knowledge exists on work stressors, a thorough investigation on well-being incidence, risk factors, as well as job resources is needed. From a preliminary literature search, a few empirical studies that describe work stress among dental hygienists could be traced [1–5]. Work stress incidence among dental hygienists appears to be relatively favourable, when compared with other professions, according to a 20-year-old study. On the contrary, in recent studies, it was described that one out of eight dental hygienists felt emotionally exhausted from work [6, 7]. Dental hygienists, when compared with other professionals, seem to be relatively negative about the variety of tasks they find in their work. Factors associated with experienced work stress are, according to other studies, musculoskeletal pain, combining work and private life, highly efficient organisation of work, long working hours, working without assistant, difficult or demanding patients, lack

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of leisure time, lack of support by practice management and doubts about one's own capabilities [8–10]. All these variables can affect individuals' stress levels, first as people and then as workers. In this regard, it is important to describe what is meant by stress and what are the variables that can trigger it, affecting the well-being of individuals in general, and specifically of dental hygienists, a population that was taken into consideration in this study.

Stress is a psychophysical response to even very different tasks, of an emotional, cognitive, or social nature, which the person perceives as excessive [11]. Based on the duration of the stressful event, it is possible to distinguish two categories of stress: if the stimulus occurs only once and has a limited duration, we speak of 'acute stress', if instead the source of stress persists over time, we use the expression 'chronic stress' [12]. Chronic stress properly speaking lasts a long time, invests different spheres of life, and constitutes an obstacle to the pursuit of personal goals. Alongside the distinction based on duration, it is possible to identify two categories based on the nature of the stressful events. In many cases, stressors are harmful and can lead to a lowering of the immune system—therefore we speak of distress [13]. In other cases, however, stressors are beneficial, since they promote greater vitality of the organism—in this case, the expression eustress is used [14]. According to a definition by the National Institute for Occupational Safety and Health: "Work-related stress can be defined as a set of harmful physical and emotional reactions that occur when the demands placed on the job are not commensurate with the worker's skills, resources, or needs."[1] Much of the stress of our daily lives comes from work. The experience of stress at work is associated with exposure to certain working conditions, both physical and psychosocial, and with the worker's awareness of having difficulties in coping with important aspects of their job. The experience of stress is accompanied by attempts to deal with the underlying problem (coping) and by cognitive, behavioural, and physiological changes, while beneficial in the short term, these changes can pose a threat to health in the long run. Various psychic pathologies, such as anxiety and panic, can be generated by an unhealthy working environment that compromise individual resources. In this regard, according to Karasek and Theorell [15], individuals who simultaneously perceive high work demands, low control, and who simultaneously feel socially isolated from a relational point of view (low social support) are those who experience the reactions more adverse to stress such as anxiety, depression, and the development of psychosomatic illnesses. The emergency, such as that of COVID-19 pandemic, has exposed healthcare personnel (including dental hygienists) to a series of specific risk factors linked to the care of the infected patient, but also to substantial changes in the work as regards the organisational, relational, and safety-related aspects which contribute to the increase in psycho-physical stress [16]. The prolongation of the health emergency over time has increasingly boosted pressure and fear in healthcare personnel, and lead to a chronicisation of work-related stress. If prolonged over time and accompanied by intense pressure, stress can lead to a depletion of psychological resources and in some cases lead to burnout [17]. In 2019, burnout was included in the 11th revision of the International Classification of Diseases (ICD-11)[2] as an occupational phenomenon. In 1975, Christina Maslach, a social psychologist at the University of California-Berkeley, studying how people react to emotional stress in the workplace, especially cognitive strategies such as of users and experiencing one's work in a more detached way, conducted a series of interviews among nurses, doctors and social-health workers, noting the diffusion among this kind of profession of psychiatric symptoms very similar to depression. Explaining these results, she told her that this style of response to work stress was quite well known among his colleagues and was colloquially called burnout. Since then, the construct of burnout has indicated a form of reaction to work stress typical of the helping professions. It is characterised by a feeling of depletion of energy or exhaustion, an increase in mental distance, and negative or cynical feelings towards work and others, and reduced professional effectiveness. Exposure to chronic stress can impact a person's psychophysical health in various ways, ranging from concentration and memory problems, somatic problems, and behavioural changes, to symptoms of anxiety and depression, a sense of helplessness and even a state of suffering known as burnout. Burnout is generally defined as a syndrome characterised by a set of psychological and behavioural manifestations that can be grouped into three components: (1) emotional exhaustion (feeling of being emotionally drained and cancelled from one's work due to an emotional drying up of the relationship with others); (2) depersonalization (attitude of estrangement and refusal towards those who request or receive the professional service); and (3) reduced personal fulfilment (the perception of one's own inadequacy for work, the fall in self-esteem and the feeling of failure in one's job). Intense and prolonged tension and pressure can also lead to an underestimation of the perception of risk and of the protective measures to be adopted, which can lead to inadequate or inadequate behaviour and procedures. In a study conducted on 486 hygienists before the emergency from COVID-19, entitled 'Epidemiological survey on burnout syndrome among dental hygienists' [18], wanted to evaluate the frequency with which the psychological discomfort defined as burnout is distributed among dental hygienists. The study shows that 13.17% of the interviewees obtain a high-risk score for emotional exhaustion, while depersonalization shows a high risk in 7% of the interviewees. Another study, titled 'Mental Health and Self-Care Practices Among Dental Hygienists' [19], set out to determine the prevalence of mental health problems, as well as perceived stressors and self-care strategies among dental hygienists. The most common stressors were associated with difficulties in maintaining work–life balance (35%), working with dysfuncitonal work teams (34%), and not having enought time in the work schedule (65%). As suggested by the Italian Ministry of Health in the document 'Coping with the mental health and psychosocial aspects of the COVID-19 epidemic'[3] useful coping strategies could be ensuring rest and respite during work or between shifts, eating healthy and sufficient food, doing physical exercise and keep in touch with family and friends. In this vein, it would be valuable to investigate the psychosocial factors involved in this area and identify potential mechanisms for promoting dental hygienists' well-being and avoid burnout and stressful situation. Thus, following these premises this study tries to answer to these research questions: what are the factors that counteract psychological distress and promote job satisfaction in Italian dental hygienists? What are the predictors of well-being in Italian dental hygienists? The following paragraphs will illustrate the Italian situation during the pandemic and describe the factors that can affect the well-being of dental hygienists.

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1.1 | Role and Tasks of Dental Hygienists: Work-Related Skills' Map in the Italian Context

In the Italian context, the dental hygienist is the health worker who, in possession of a university qualification enabling the profession, carries out tasks relating to the prevention of oral diseases on the recommendation of dentists and surgeons authorised to practice dentistry. This professional figure can carry out his/her activity in public or private health facilities, as an employee or freelance professional, on the recommendation of dentists and surgeons authorised to practice dentistry. Figure 1 explains how the skills of Italian dental hygienists are structured.

1.2 | Oral Hygiene Procedures During Phase II in Italy: The Operational Indications of the Italian Ministry of Health

Health is a fundamental right of the individual. Defined by the World Health Organisation: 'Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity',[4] but health is also today in a central position in the system of fundamental rights, contributing in a decisive way to the 'constitutionalizing' of the person, that is, to the identification of an area reserved for the free choices of each. Health cannot be sought as a stable condition, or a perfect measure, but must be conceived as a dynamic equilibrium: within the *soma*, between the *soma* and the *psyche*, between the individual and the environment. '(Treccani Encyclopedia)'.[5] Workers are required to comply with all the prevention measures identified: 'each worker must take care of their own health and safety and that of the other people present in the workplace, which are affected by the effects of their actions or omissions, in accordance with his training, the instructions and the means provided by the employer'. (Article 20 of Legislative Decree 81/2008).[6] Bertil Gardell is widely recognised in Europe as one of the founding figures of health psychology applied to organisational contexts. In his works, he has extensively described how work (organised for example according to the Tayloristic model) could lead to 'alienation' and withdrawal. A series of research conducted in the 70s and 80s by authors who belonged to his institute revealed the deleterious influence on psychological well-being and physical of the time pressure resulting from automated work, lack of autonomy at work, monotonous work, and fragmented and isolated work. The importance of dimensions such as worker participation and control has increasingly emerged. Work can become a cause of suffering and discomfort when psychologically and physiologically stressful circumstances are created that correspond to difficulties that the individual must overcome, and which therefore constitute a source of pressure or stress [20]. In this regard, phase two of the emergency began in Italy on May 4, 2020, with the gradual reopening of commercial establishments and production activities (see Table 1).

Despite all the previous phases, the dental sector has never ceased its activity, limiting it in phase one to the management of emergencies and non-postponable services because the SARS-CoV2 virus has a particular affinity not only for lung tissues, but also for the tissues of the salivary glands, making the oral cavity one of the major sites of the replicating virus. Furthermore, the fact that SARS-CoV-2 penetrates cells via the ACE2 receptor may promote human-to-human transmission. In fact, ACE2 + cells (which present this receptor) are abundantly present throughout the respiratory tract and in the epithelium of the duct of the salivary glands. Patients and

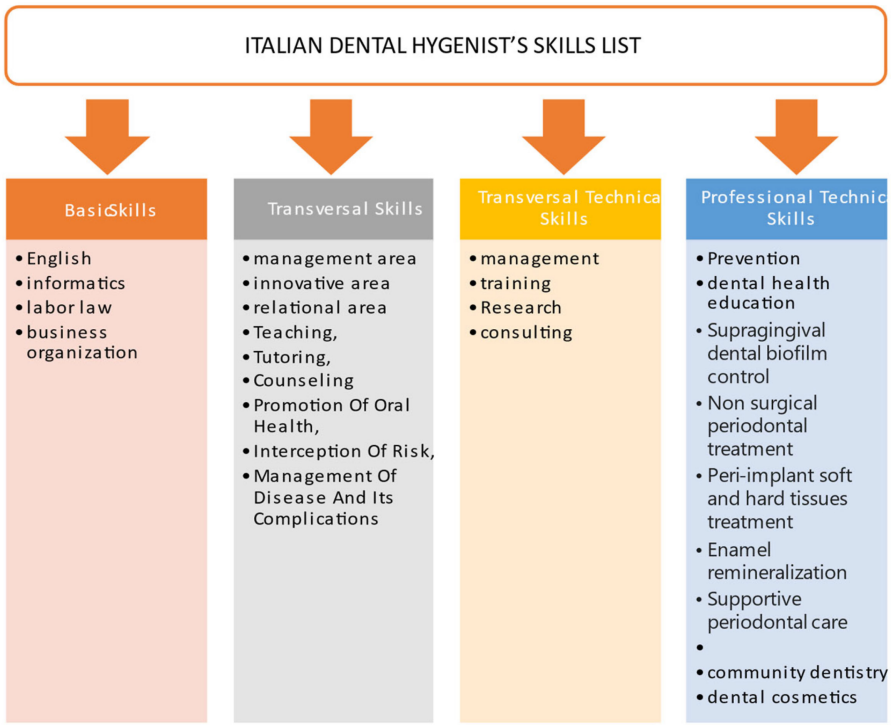

FIGURE 1 | Skills' list of Italian dental hygienists.

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TABLE 1 | Chronology of the pandemic in Italy.

COVID-19 Pandemic Phases in Italy from 2020 to 2022
Pandemic start: In Italy, the pandemic advances unabated and explodes in March 2020. March 11 is the day of the lockdown and Italy becomes a single red zone
Phase 2 of the Covid emergency begins on 4 May 2020. Various production activities reopen. Social distancing and the ban on gatherings remain. In closed places, it becomes mandatory to wear a mask
Phase 3: The first wave of the epidemic slows down and in June, the summer centers for children, the activities of wellness centers, spas, cultural centers, and social centers reopen. Holidays and evenings at the disco rekindle the infections and, in a few weeks, they exceed 10 thousand
Second wave: From 13 October 2020, masks are mandatory both outdoors and indoors. No parties, dinners for up to six people, goodbye to five-a-side football and limited-number theatre and cinema
In December 2020, the "colour" system was also born, with the three yellow, orange, and red risk bands to be assigned to the regions on a weekly basis based on the monitoring indicators
State of emergency extended until 31 December 2021 the system with coloured bands, the curfew, and the stop to travel between regions remain in force
The state of emergency ends on 1 April 2022

dental professionals are exposed daily to pathogenic microorganisms, including viruses and bacteria, which infect the oral cavity and respiratory tract. Dental procedures carry the risk of SARS-CoV-2 infection due to the specificity of the procedures themselves. In fact, we speak of direct transmission as regards the distance between operator and patient, exposure to saliva, blood, and other body fluids, the use of pointed instruments and rotating instruments generating "droplets", contact with the conjunctival mucosa, and finally contact with droplets produced by cough and nasal secretion of an infected individual without a mask at a short distance, which significantly increases the biological risk for the operator. Pathogenic microorganisms can also be transmitted in the dental field through their inhalation when transported by aerosol. Indeed, when the rotating instruments are operated in the oral cavity, a large amount of aerosol is generated containing the patient's saliva and sometimes blood, very small particles that remain suspended for a prolonged period. In addition, human coronaviruses such as SARS-CoV, MERS-CoV, or endemic viruses (HCoV) can persist on surfaces such as metal, glass, or plastic for a period of 48 h, and according to a recent study by the New England Journal of Medicine, SARS-Cov2 can persist on surfaces for up to 72 h. According to a mathematical model for calculating the risk for biological exposure, the dental health environment has been defined a scenario with a medium–high level of risk based on the type of worker, the environment in which he works, the procedures he carries out and with how often does those same procedures perform (Legislative Decree 81/2008). Therefore, different levels of protection are recognised to allow the healthcare worker to work in a safe condition for himself and for the patient himself. Considering the pandemic linked to SarsCoV-2, even in the absence of clear scientific evidence in the literature, it is necessary to identify the protections concerning clothing, operating protocols, disinfection of environments, and management of waiting rooms and front-offices. In oral hygiene procedures during phase two, where possible, it is advisable to prefer manual therapies, the use of low-speed rotary instruments to minimise the production of aerosol and contaminating droplets and try, at least in this phase, to delay therapies relating to the patient's aesthetics over time. Although oral hygiene procedures are among those most at risk in dental practice during the pandemic, it is also true that, for the protection of the patient's health, they cannot be postponed for the prevention and treatment of (1) the most frequent oral diseases and (2) pathologies that can lead to systemic damage to the organism. The clinical recommendations in odontostomatology report that 'The Mechanical treatment for the removal of bacterial plaque and supragingival and subgingival tartar with scaling or scaling and root planning or root planning methods can be carried out with the use of manual, ultrasonic and sonic instruments'. The effectiveness of the types of tools about the removal of hard and soft deposits has proven to be superimposable. The tooth surface is therefore made biologically compatible with the health of the periodontal tissues. In particular:

Available methods to reduce aerosol and splash contamination:

1. Use the rubber dam in the performance that allows it: its use can significantly reduce the particles suspended in the air of about 1 m in diameter of the operating field by 70%.
2. Use low-speed handpieces whenever possible.
3. Use manual procedures whenever possible.
4. Personal protection barriers such as disposable gowns/caps/coveralls.
5. Water repellents, filter masks, gloves, safety glasses, and face shields.
6. Pre-treatment rinse with antiseptic mouthwashes.
7. Use high-speed double suction (HVE).
8. Tidying up after a dental service.

Based on the amount of material used during the procedure dentistry and the extent of contamination, consider a time suitable for reorganising the unit after each individual service; in this phase consumed and contaminated PPE are changed. It is recommended to ventilate the operating environment during the reordering phase, as the presence of the virus in the air is documented after the formation of aerosols and droplets.

For dental hygienists, it is essential to wear FFP2/FFP3 masks to protect themselves from the aerosol caused by piezoelectric and/or magnetostrictive ultrasonic instruments. The way of handling the templates is of great importance both in the positioning and removal phases. Disinfect screens/visors/glasses at the end of the session with alcohol at 70°.

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1.2.1 | Disinfection of the Environment

In addition the literature [33][7] and to protocols already regularly in use, to treat, surfaces and chairs exposed to contact from aerosol fallout and splashes have been introduced other specific chemical agents as 65/70% ethyl alcohol o 0.1% hypochlorite o ready-to-use products active on enveloped viruses and possibly specifically also on Coronaviruses.

> At the end of each operating procedure, the aspirators must suck up water and appropriate decontaminants/ disinfectants for a long time.

1.2.2 | Ventilation

For workplaces, it is recommended to implement natural ventilation of the operating areas for at least 10–15 min by opening doors and windows frequently and in any case between one appointment and the next. In the case of an air conditioner, it is recommended that the filters of the systems be cleaned weekly according to the manufacturer's instructions.

1.2.3 | Dressing and Undressing of the Dental Hygienist

The operator dressing and undressing procedures must be performed respecting the sequences of Ministry of Health May 2020 to avoid contamination.

1.2.4 | Dressing

1. Remove jewellery and personal items.
2. Clean your hands with soap and water or alcoholic solution.
3. Check the integrity of the devices (do not use damaged devices).
4. Put on the uniform/overalls/disposable cap.
5. Wear suitable facial filter.
6. Wear protective goggles or face shield.
7. Put on gloves.

1.2.5 | Undressing

Behavioural rules:—avoid any contact between potentially contaminated PPE and the face, mucous membranes, or skin; —disposable PPE must be disposed of in the appropriate container in the undressing area; —decontaminate reusable PPE.

Respect the indicated sequence:

1. Remove gloves and dispose of them in the container.
2. Remove the glasses or the screen and sanitise them.
3. Remove the disposable gown and dispose of it in the container
4. Remove the facial filter by handling it from the rear and dispose of it in the container.
5. Clean your hands with soap and water or alcoholic solution.

Considering what has been described so far, we asked ourselves which factors can affect the well-being of dental hygienists a considering these descriptions, with the introduction of the personal protective equipment (PPE) obligation, the work of dental hygienists in the Italian context has become much more stressful and complex. This is why it is important to investigate what are the factors that counteract psychological distress and promote job satisfaction in Italian dental hygienists, considering also what are the predictors of well-being and how these factors could affect job satisfaction.

1.3 | The Role of Job Satisfaction, Perceived Control, and Dentist Support on Well-Being

Having personal control over the work environment for dental hygienists refers to the ability the individual needs to adopt and adapt to the quality of their work environment to improve their work and business effectiveness. In defining the control over the work environment, previous studies have some suggestions and explanations. Allen and Greenberger [21] defined personal control as the ability to personalise one's workspace. Other studies have also defined work control including activity control, decision control, physical environment control, and resource control [22, 23]. Indeed, personal control over the work environment can have a positive influence on the health, satisfaction, group cooperation and effectiveness of workers and other perceptions associated with health and stress at both individual and group levels [24]. Personal control over the workspace can also improve people's mood and enhance their intellectual performance and creativity at work ([25]).

As suggested by previous studies, personal control over the work environment is necessary for individual well-being and job satisfaction [26], which is critical in the success of an organisation [26]. It is often observed that employees who are more satisfied with the physical work environment are more likely to do better work and perform better [27]. Indeed, people's productivity, safety, well-being, and job satisfaction will be affected by the adjustment of their physical work environment. for dental hygienists, in this study, perceived control is closely related to the support the dentist provides them. In fact, in the results section, it will be possible to see how this aspect is also linked to individual well-being.

1.4 | The Relevance of Role Clarity, Work Self-Efficacy, and Colleagues' Support on Well-Being

Roles are important elements in the structure and performance of small groups. Within the theory of organisational roles [28], roles within groups are considered a set of prescriptions that define the behaviours required of a single member occupying a certain position. Regarding member roles and perceptions of effectiveness, Bandura [29] noted: 'If people are

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to work together successfully, group members must perform their roles with a high sense of effectiveness' (p. 227). While it is clear from this quote that role-related perceptions of effectiveness are important to the success of the group's performance, it is important to reiterate the above. The delineation between types of efficacy beliefs associated with interdependent and independent behaviours has been empirically supported in recent research. Bray and Brawley [30] demonstrated that team members' beliefs about their abilities to perform interdependent formal role functions (role effectiveness) were related to, but distinct from, their self-efficacy beliefs about the skills they performed independently. It was also found that beliefs about role effectiveness are distinct from team members' shared beliefs about their team's collective effectiveness. Furthermore, in a study examining the antecedents and consequences of role effectiveness, Bray and Brawley [30] found that there is a reciprocal relationship for role effectiveness and role performance effectiveness. That is, role effectiveness prospectively predicts role performance effectiveness and role performance effectiveness is also prospectively predictive of role effectiveness. However, Bandura [29] has shown that the magnitude of the efficacy–performance relationship can be strongly influenced by several moderating variables. One potential moderator highlighted by Bandura that has relevance to member roles is the ambiguity of tasks.

1.5 | The Study

Referring to the literature and what happened during the pandemic in Italy, we took into consideration those factors that have an influence on the work well-being and job satisfaction of Italian dental hygienists: Work life balance, perceived control, relationship with colleagues, dentist support, role clarity, work self-efficacy, perceived change, colleague's support, and team integration. Consider the research questions, we formulate the following hypotheses:

H1. *Work life balance, perceived control, relationship with colleagues, dentist support, role clarity, work self-efficacy, perceived change, colleague's support, and team integration are significantly correlated with each other and influence the well-being and job satisfaction of dental hygienists.*

H2. *Dentist support directly affect perceived control, relationships with colleagues and well-being of Italian dental hygienists.*

H3. *Perceived control directly affects relationships with colleagues and well-being of Italian dental hygienists.*

H4. *Relationships with colleagues directly affect well-being of Italian dental hygienists.*

The study was conducted by the supervision of AIDI (Italian Dental Hygienists Association) and the ATS (technical scientific association), following the Italian and European ethical regulations in force in terms of data collection and scientific research performance.

Whether the PPE used and the readjustment of the operating setting during the Covid-19 pandemic have in any way affected the physical and psychological health of dental hygienists and to what extent. Returning to work was not easy for many, even more so for the category of hygienists, since they had to review the organisation of the study, patient reception, and decontamination times and increase PPE. The idea for the project arose when the complaints of hygienists and dental professionals began to be read on social media for the inconvenience encountered upon returning from quarantine, due to uncomfortable masks, fogging of facial screens, and heat under the gowns (increased discomfort since it was forbidden to switch on the air conditioners to avoid spread of the virus). We wanted to focus attention on phase 2, which began on May 4, 2020, the period immediately following the lockdown. The survey was carried out through an online questionnaire, mainly with closed-ended

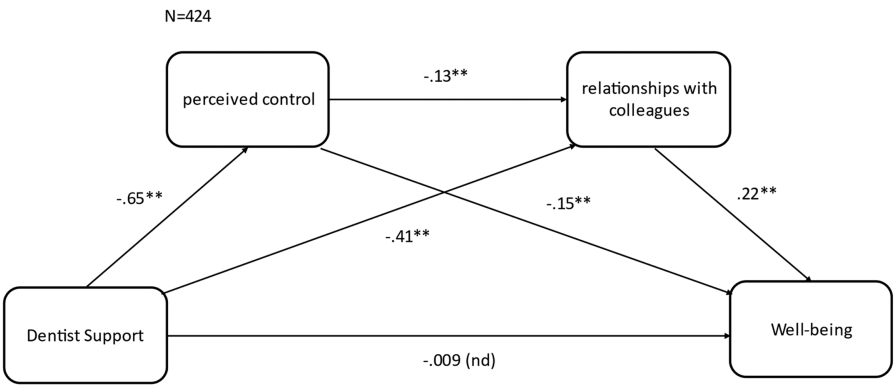

FIGURE 2 | Structural equation model explained the moderated mediation of variable considered. $^{**}p < 0.01$.

TABLE 2 | Sample description.

Variables	Subject number	Mean	SD
Age	424	38.53	11.461
Seniority of service/professional	424	1.72	0.824

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questions, built partly based on other surveys carried out on the same topic and partly using scales of psychological dimensions of proven consistency and reliability (also assessed in the analysis phase with the Cronbach alpha index). Descriptive statistics are generally reported with mean and SD (as an indicator of dispersion). The inferential statistics are reported using bi-varied correlations and linear regressions. The analysis of qualitative responses was conducted through categorization without the use of automatic algorithms.

2 | Method

2.1 | Data Analyses and Statistical Methods

The study included a heterogeneous group of 424 Italian dental hygienists who were involved in a work-related stress assessment carried out by the organisation they work for. The response rate is 98%. The sample consisted of women in 87.4% of the cases. The age distribution was as follows: 34.6% were under 30 years of age, 25.4% were between 31 and 40 years, and 20.6% were between 41 to 50 years, and 17.8 were between 51 and 60. Participants were recruited by contacting the Italian trade association (AIDI). A communication was sent to associated dental hygienists via e-mail through which the questionnaire used was distributed. The instrument used for the survey is Work related stress indicator Tool—INAIL 2017[8], specific for the Italian sample [31].

After the data analysis, a follow-up of the results and report was provided to the AIDI association and to the dental hygienists who participated in the research.

Descriptive statistics and multiple regression were used to test the RQs describe before by SPSS 28. A moderated sequential mediation analysis was run to test the theoretical model illustrated in Figure 2 using the PROCESS macro for SPSS (Ref. [32]; model 6).

3 | Results

The results are illustrated below (Table 2). From the table of descriptive statistics, it emerges that the average age is about 38 years, therefore relatively young dental hygienists. They have also just started the job, since the years of service are just over one.

Turning on correlation table (Table 3), the correlations show that as the work–life balance increases, so does the perceived control in carrying out the duties of a dental hygienist as well as in one's personal life. Conversely, the decrease in work–life balance and control decreases the perception of the quality of relationships in the workplace. As far as dentist support is concerned, this increases as work–life balance and control increase but decreases as the perception of the quality of relationships in the workplace decreases. The clarity of the work role in carrying out the role of dental hygienist increases if the work–life balance, the support of the dentist, and the perceived control in carrying out the task also increase, while it decreases if there are negative relationships within the work

TABLE 3 | Correlation table of considered variables.

Variables	Mean	SD	1	2	3	4	5	6	7	8
Work fife balance	3.60	0.639								
Perceived control	3.42	0.988	0.511**							
Relationship with colleagues	2.11	0.689	−0.532**	−0.477**						
Dentist support	3.76	0.865	0.473**	0.596**	−0.631**					
Role clarity	4.48	0.553	0.364**	0.488**	−0.412**	0.494**				
Work self-efficacy	3.80	0.479	0.328**	0.422**	−0.373**	0.443**	0.490**			
Perceived change	3.60	0.905	0.428**	0.584**	−0.608**	0.697**	0.603**	0.536**		
Colleague's support	3.45	1.02	0.396**	0.477**	−0.562**	0.574**	0.415**	0.385**	0.484**	
Team integration	3.88	0.899	0.342**	0.477**	−0.618**	0.674**	0.478**	0.370**	0.645**	0.565**

**$p < 0.01$.

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TABLE 4 | Model estimates.

	Coeff	SE	*t*	*p*	LLCI	ULCI
Dentist support on perceived control	−0.65	0.057	11.4	0.00	0.54	0.77
Dentist support on relationships with colleagues	−0.41	0.045	−9.1	0.00	−0.50	−0.32
Direct effect	−0.009	0.47	−0.19	0.84	−0.10	0.084
Perceived control on relationships with colleagues	−0.13	−0.039	−3.5	0.00	−0.21	−0.06
Perceived control on well-being	−0.15	0.036	−4.2	0.00	−0.22	−0.08
Relationships with colleagues on well-being	0.22	0.05	4.02	0.00	0.11	0.33

Note: Coeff, coefficient; SE, standard error; LLCI, lower-limit confidence interval; and ULCI, upper-limit confidence interval.

group. As regards the perception of one's own work effectiveness, it increases as work–life balance, control, dentist support and role clarity increase, while it decreases if there are negative relationships within the work group. Changes in the workplace are perceived negatively if the relationships developed within the work group are negative. On the other hand, they are positive if related to all the other variables. Finally, support from colleagues and integration within the work team decrease if the perception of negative relationships in the workplace decreases, while they increase if the positive perception of the other variables increases.

Therefore, starting from these results, we tested a mediation model that describes the factors that influence the work–life balance of dental hygienists. A multi mediation analysis was run to test the theoretical model illustrated in Figure 1 using the PROCESS macro for SPSS (Ref. [32]; model 6). Results show that the factors that most influence the well-being of dental hygienists in the workplace are dentist support, perceived control over the performance of the job and relationships with colleagues. On the other hand, there is no significant direct relationship between dentist support and well-being (see Table 4 and Figure 2).

Particularly, an increase in perceived control is associated with a significant decrease in both relationships with colleagues ($\beta = -0.13$, 95% CI [−0.21, −0.06], $p < 0.001$) and well-being ($\beta = -0.15$, 95% CI [−0.22, −0.08], $p < 0.001$).

4 | Discussion and Conclusions

The goal of this study was to assess the impact of the COVID 19 pandemic in terms of work-related stress in Italian dental hygienists. Compared to the results that emerged regarding hypotheses H1, H4, and H3. It emerged that the main factors that play an important role in the dental hygienist's job satisfaction and consequently on their well-being are: the support of the dentist, the perceived control in carrying out one's work, and the quality of relationships with colleagues. On the other hand, the dentist's support alone does not have a direct effect on individual well-being (H2). This is a very relevant result as it highlights how it is not a single factor that influences individual well-being in the workplace, but multiple factors together that create it. Moreover, another interesting result is that increase in perceived control is associated with a significant decrease in both relationships with colleagues and well-being. This study shows how the 'human factor' in the workplace is fundamental in the profession of dental hygienist. In this regard, in fact, it would be appropriate to pay more attention to these factors in the workplace, as they can directly affect the well-being of the individual and consequently on his work performance.

5 | Clinical Relevance

5.1 | Scientific Rationale for Study

This research intervention has no purely clinical relevance but could have relevance on the analysis of relational dynamics in the workplace of dental hygienists, and how these dynamics impact the well-being of individuals and the group.

5.2 | Principal Findings

The main results highlight the main variables that influence the working dynamics of Italian dental hygienists.

5.3 | Practical Implications

It can be a starting point for future research on the analysis of the working environments of dental hygienists not only limited to the Italian context.

Author Contributions

M.B. write the original draft and made the final revisions. A.A., M.T.A., and V.C. did the revision and the conceptual work. P.B. and S.S. did the final revision and the research work, including data collection.

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Conflicts of Interest

The authors declare no conflicts of interest.

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Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Endnotes

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