



ORIGINAL ARTICLE

Is there burnout related to work among Dutch dental hygienists?: Combining studies by using the UBOS and the UWES

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Abstract

Objectives: To investigate the prevalence of burnout among Dutch young and more experienced dental hygienists and the work experience of young professional dental hygienists.

Material and methods: Two studies were carried out using the Dutch version of the Maslach Burnout Inventory; the Utrecht Burnout Scale (UBOS) and the Utrecht Work Engagement Scale (UWES). In Study I, 400 participants completed an online questionnaire, including the UBOS-general version. In Study II, a questionnaire was distributed via social media to young professionals, including the UBOS-health care version and the UWES-9.

Results: 2.5% of 157 dental hygienists (Study I) satisfied the norm of burnout. Dental hygienists' average work experience was 16.6 years, and one-thirds worked 25–32 hours per week. In Study II, 73 young professionals ($M = 26.5$ years) reported 32.9 weekly working hours. Three-quarters were employed and worked in a dental clinical team practice. UWES-mean scores indicated a moderate to high level of work engagement. Mostly, all aspects of burnout were low compared with the test Manual norms.

Conclusions: Exploratory findings show that generally burnout appears no threat for Dutch dental hygienists, and moderate to high level of work engagement coincides with a low level of burnout-related symptoms.

KEYWORDS

burnout, dental hygienists, employed and independently working dental hygienists, public health, work engagement, young professional

1 | INTRODUCTION

In organizations as well as in scientific research, employee well-being is receiving evermore attention. Well-being at work is a broad concept, including work satisfaction, motivation, enthusiasm,

coordination and a lack of stress. There are many definitions of burnout, but the one most often used describes it as: "...a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment which can occur among individuals who do 'people work' of some kind".¹ The concept of burnout has penetrated

science from practice and not vice versa; it occurred in the first instance as a social and not as a scientific problem.² For instance, 30 years ago, a study indicates alarmingly high work-stress burnout among advanced emergency medical technicians (paramedics), which is associated with a rather complex set of correlates, and some implications, such as job requirement changes for paramedics, were also discussed.³ In a relevant recent paper, it was examined if a number of questions about the nature of burnout, for example What is burnout? Is burnout work related? Among what kind of employees is burnout most prevalent? could be answered by research findings.⁴ Burnout as a syndrome is characterized by feelings of mental and physical exhaustion and is associated with perceptions of excessive demands, lack of enthusiasm, increased distance from work, and feelings of frustration or cynicism due to reduced performance, including a negative perception of one's own competence at work.^{5,6} Two decades ago, in a previous study among Dutch dentists, professional burnout was described as a long-term consequence of occupational stress and was considered to be a factor that explains a substantial proportion of incapacity for work.⁷

Moreover, burnout is considered to be the negative, opposite pole of work engagement. Work engagement is defined as a positive work-related state of mind that is characterized by vigour, dedication and absorption.^{8,9} Whereas engaged workers have high energy, are very enthusiastic about their jobs and immersed in their work, people with burnout report the opposite; they feel exhausted, cynical and lack professional efficacy.^{10,11} Contrary to Dutch dentists,⁷ dental hygienists display a *high* level of work engagement.¹² As has been shown, symptoms of burnout are negatively related to employee well-being.^{10,13} External factors such as a low income or many working hours also contribute to negative feelings at work; for instance, more working hours and increasing age tend to be negatively correlated with job satisfaction.¹⁴

A systematic literature review showed that factors such as younger age, male gender, student status, type of personality, high job-strain, increased working hours and qualification level were associated with an increased prevalence of burnout in dentists and dental students.¹⁵ Some of these factors are also experienced by dental nurses.¹⁶ Moreover, dental hygienists often experience work stress due to musculoskeletal pain, difficulty maintaining work-life balance, long work hours and many days a week, lack of leisure time, working without assistance, difficult or demanding patients, highly efficient organization of work, patient reservations scheduled weeks ahead, lack of support by practice management and doubts about one's own capabilities.^{17,18}

To date, no concrete data are available about the level of burnout among Dutch dental hygienists. However, a recent survey among Dutch medical professionals found that 13.9% of the participated Dutch dentists reported burnout related complaints.¹⁹

The two studies were conducted to obtain insight on the prevalence of burnout among Dutch dental hygienists using two Dutch versions of the Maslach Burnout Inventory¹; the Utrecht Burnout Scale (UBOS). The aim of the first study was to explore the three dimensions of burnout: (Emotional) Exhaustion; Mental Distance and

Competence, which may indicate employee well-being of Dutch dental hygienists. In the second study, the aim was to examine employee well-being of young professional Dutch dental hygienists. In addition, Study II was aimed to gain insight in the three dimensions of burnout: (Emotional) Exhaustion; Depersonalization and Personal Accomplishment,² and in the three dimensions of work engagement: Vigour, Dedication and Absorption.

2 | MATERIAL AND METHODS

2.1 | Ethics statement

Two cross-sectional studies were conducted according to universal ethical principles. Because data were collected by electronic questionnaires and no medical research experiment took place among these participants, in the Netherlands this study is not defined as a medical research experiment according to the Dutch Medical Research Involving Human Subjects Act.²⁰ Therefore, ethical approval from a medical evaluation board was not required. Furthermore, the study was conducted in accordance with the Declaration of Helsinki, an extensive formal written informed consent was waived, and verbal informed consent was obtained. Voluntary participation and anonymity were emphasized in the cover letter to the dental hygienists who were members of the Dutch Dental Hygienists' Association (NVM-mondhygiënist), as well as in the digital announcements to the young professional dental hygienists.

2.2 | Sample and procedure Study I among members of the professional organization

In line with the policy of the Dutch Dental Hygienists' Association (NVM-mondhygiënist) to avoid overloading their members with questionnaires, a random sample of 400 of a total of 2899 dental hygienists was selected and these individuals were invited by e-mail to participate in the study. The study took place from January till March 2014. Dental hygienists not working as a clinical practitioner, student-members, retired members, members working abroad and extraordinary members were excluded. This sample of NVM-dental hygienists appeared to be, in respect to age, gender, work experience and region, an adequate representation of the population of dental hygienists in the Netherlands. Most dental hygienists had finished their dental hygiene education at the age of 22 and started retirement between the ages of 60-65.²¹⁻²³ Age categories were "younger than 26 years"; "26-30 years"; "30-35 years" and so on, up to "older than 60 years." Weekly working hours were categorized as "8-16 hours"; "17-24 hours"; "25-32 hours" and "more than 32 hours."

To measure burnout, three versions of the UBOS are available; the UBOS-A version is for general use, the UBOS-C is for interpersonal professions such as healthcare employees and the UBOS-L is for teachers.² The questionnaire for Study I included the Utrecht Burnout Scale (UBOS-A) and was available on the Internet

via ThesisTool Online Surveys.²⁴ Participation announcements were placed on the NVM intranet, in the Dutch Journal for Dental Hygiene (*Nederlands Tijdschrift voor Mondhygiëne; NTVM*) and in a NVM-newsletter.

2.3 | Sample and procedure of Study II among young professionals

From April to May 2018, via social media (Facebook and LinkedIn), an online questionnaire, including the Utrecht Burnout Scale (UBOS-C) and the Utrecht Work Engagement Scale (UWES-9),¹⁰ was provided by the Education of Dental Hygiene of the Institute of Health Studies of HAN University of Applied Sciences to Dutch dental hygienists, who just graduated or worked as a clinical dental hygienist for a maximum of 5 years. To compare findings with those of Study I, the age categories used in Study II were categorized into “younger 26 years,” “26-30 years,” “30-35 years” and so on. Weekly working hours were categorized as “8-16 hours,” “17-24 hours,” “25-32 hours” and “more than 32 hours.”

The distribution of these demographics was in both studies in line with the composition of the Dutch Dental Hygienists' Association (NVM-mondhygiënisten). In 2013, 97% of all Dutch dental hygienists was female and the largest age group was 39 years old or younger (60%). In 2017, 94% was female and the largest age group was 39 years old or younger (62%).²⁵

2.4 | Questionnaire Study I and Study II

Both questionnaires contained demographic questions regarding gender and age, weekly working hours as a dental hygienist, work experience in years and employment or self-employed (ie working independently in their own practice). Besides the UBOS-A, the questionnaire of Study I included three questions intended to obtain additional background information concerning burnout, that is “Have you suffered from one of the following syndromes in the past five years?” with responses “burnout,” “being overstressed,” “none,” “both” and a following question: “By whom has it been diagnosed?” with responses: by a “doctor,” “psychologist,” “psychotherapist,” “the respondent himself,” “general practitioner and psychologist” or “does not apply to.” The third question was “has a burnout or exhausted feeling occurred in the last 5 years as a result of their work?” which could be answered with “yes” or “no.” In Study II, the questionnaire included only one additional question: “Have you ever experienced a burnout?” answered with “yes” or “no.”

In Study I, the UBOS-A was used, which consists of 15 items and includes three dimensions: Emotional Exhaustion (EE), which measures feelings of being overextended and exhausted by one's work (5 items, $\alpha = .87$), Mental Distance (MD, i.e., cynicism), which measures a cynical, indifference or a distant attitude towards one's own work (4 items, $\alpha = .84$) and Competence (C, i.e., professional efficacy), which measures to what extent people feel able to do their work

well (6 items, $\alpha = .74$). The internal consistency of all scales was in line with the test Manual (2, p. 42). Statements about how one feels at work were answered on a 7-point rating scale where 0 denoted never and 6 meant always. Scores are determined for each dimension (subscale) by averaging the sum scores of the items. The three subscale scores can be combined into a single judgment in terms of “burnout” or “not burnout.” Comparing the scores on each of the three subscales separately displays the level of burnout, in which high scores on EE and MD combined with a low score C indicate a high level of burnout.^{1,2}

In Study II, burnout was assessed with the UBOS-C, which consists of 20 items and includes three dimensions of burnout: Emotional Exhaustion (EE; 8 items, $\alpha = .91$), Depersonalization (DP; 5 items, $\alpha = .63$) and Personal Accomplishment (PA, 7 items, $\alpha = .84$). The internal consistency of the UBOS-C was in line with the test Manual (2, p. 25). In addition, the short form Utrecht Work Engagement Scale (UWES-9)¹⁰ was administered. The UWES-9 ($\alpha = .93$) is a hypothesized three-factor measure of work engagement consisting of Vigour (VI; 3 items, $\alpha = .88$), Dedication (DE; 3 items, $\alpha = .93$) and Absorption (AB; 3 items, $\alpha = .71$). Internal consistencies of the UWES full scale and all three subscales deviate only minimally from the UWES-9 Manual (i.e., full scale Cronbach's $\alpha = .93$; subscales respectively VI: $\alpha = .84$; DE: $\alpha = .89$; AB: $\alpha = .79$).⁸ For UBOS-C and UWES-9, all items were scored on a 7-point rating scale where 0 denoted never and 6 meant always. High scores on the UWES-9 scale and all three subscales indicated a high level of work engagement.

2.5 | Statistical analysis

In both studies, the IBM Statistical Package for Social Sciences 22.0 (Study I) and 24.0 (Study II) (SPSS Inc) were used for data analysis. The internal consistency of all scales was computed using Cronbach's α . In both studies, the data were subjected to frequency distributions, and means of the subscales were calculated. Interscale correlations on burnout (UBOS-A and UBOS-C) and UWES-9 were assessed using Pearson's correlations. *T* tests were computed to compare mean scores of each dimension of the UBOS scales the UBOS-A, and with the UBOS-C. All Standard Error of Differences (SEd) were also mentioned. The same analyses were performed for each subscale of the UWES-9. All test used were two-tailed, and *P*-values < .05 were considered significant.

3 | RESULTS

3.1 | Study population and response Study I and II

In Study I, among the 400 members of the Dutch Dental Hygienists' Association (NVM-mondhygiënisten) that were approached, dental hygienists participated by submitting the completed questionnaire. The response rate was 39.3% (N = 157), which is usual in this occupational group.^{12,23} The average work experience of the participants

was 16.6 years (SD = 10.8), ranging from 1 to 42 years. Twenty-one per cent (N = 33) worked 5 years or less. They are the so-called young professional dental hygienists.

In Study II, 52% of the young professional dental hygienists fell within the 26 years age bracket. Two-thirds (65.8%) had 2 years of work experience. The average weekly working hours was 32.9 (SD = 5.9), and the median of the work experience of the dental hygienists was “25-32” weekly working hours. Table 1 shows the remaining distribution of gender, age, weekly working hours and employment situation of both study populations.

3.2 | UBOS—Study I and Study II

Table 2 (Study I) shows the scores, frequencies and mean levels of the UBOS-A per dimension.

In comparison with the norm table for “Healthy Employees” (HE) in test Manual (2, p. 57), only four participants (2.5%) in Study I were at a high risk for burnout. Compared with these Manual norms on the dimensions EE, MD and C, significant differences were found in this sample of dental hygienists: EE ($M^{\text{sample}} = 1.58$ vs $M^{\text{HE}} = 1.78$), $t(1266) = 1.98$, $P = .05$, $SEd = 0.10$; MD ($M^{\text{sample}} = 0.88$ vs $M^{\text{HE}} = 1.34$), $t(1266) = 4.91$, $P < .00$, $SEd = 0.09$ and C ($M^{\text{sample}} = 4.78$ vs $M^{\text{HE}} = 4.29$), $t(1266) = 6.00$, $P < .00$, $SEd = 0.08$, respectively. On all three dimensions, the sample of dental hygienists scored lower on burnout than the Manual norms.

However, when compared with the norm table for “Health Care” (HC) in the test Manual (2, p. 95), which fits in well with the group of dental hygienists, 3.2% of the participants scored higher on the

dimension MD than healthcare workers. In comparison with these Manual norms on the dimensions MD and C, significant differences were found among the same group of dental hygienists: MD ($M^{\text{sample}} = 1.58$ vs $M^{\text{HC}} = 1.19$), $t(839) = 3.70$, $P < .00$, $SEd = 0.08$ and C ($M^{\text{sample}} = 4.78$ vs $M^{\text{HC}} = 4.11$), $t(839) = 8.33$, $P < .00$, $SEd = 0.08$. No significance was found for the dimension EE ($M^{\text{sample}} = 1.58$ vs $M^{\text{HC}} = 1.53$), $t(839) = 0.56$, $P = .58$ ns, $SEd = 0.09$, the two other differences are considered to be extremely statistically significant.²⁶ Thus, the dental hygienists scored lower than, or similar to, the norm group in the level of burnout.

Table 3 (Study II) shows the scores, frequencies and mean levels of the UBOS-C per dimension. In line with the test Manual norm tables for “Healthy Employees” (2, p. 53) and for “Health Care” (2, p. 79), on the dimension DP a distinction was made between male and female participants.

However, because of the relative small number of male (N = 6) in the total sample of 73 young professional dental hygienists, for the comparison of the mean scores on the dimension DP no distinction was made by gender (2, p. 54). As compared with the norm table for “Healthy Employees” (HE), it turned out that the young professional dental hygienists had different mean scores on the dimension EE and DP, but these differences were not significant. On dimension EE ($M^{\text{sample}} = 1.98$ vs $M^{\text{HE}} = 1.78$), $t(13\ 147) = 1.72$, $P = .09$ ns, $SEd = 0.12$ and on DP ($M^{\text{sample}} = 1.17$ vs $M^{\text{HE}} = 1.27$), $t(13\ 147) = 0.32$, $P = .08$ ns, $SEd = 0.09$. A significant difference was only found on the dimension PA ($M^{\text{sample}} = 4.72$ vs $M^{\text{HE}} = 4.21$), $t(13\ 147) = 5.43$, $P < .00$, $SEd = 0.10$, with the young professional dental hygienists scoring higher than the norm group on Personal Accomplishment. In comparison with the norm table for “Health Care,” same results were found: different mean scores on the dimension EE and DP, but these differences were not significant. On the dimensions EE ($M^{\text{sample}} = 1.98$ vs $M^{\text{HC}} = 1.81$), $t(10\ 623) = 1.44$, $P = .15$ ns, $SEd = 0.12$ and on DP ($M^{\text{sample}} = 1.17$ vs $M^{\text{HC}} = 1.27$), $t(10\ 623) = 0.43$, $P = .07$ ns, $SEd = 0.09$. Here also, a significant score was only found on the dimension PA ($M^{\text{sample}} = 4.72$ vs $M^{\text{HC}} = 4.22$), $t(10\ 623) = 5.46$, $P < .00$, $SEd = 0.09$, indicating that the young professionals scored higher on Personal Accomplishment than the norm group of healthcare workers.

TABLE 1 Study population; Study I (N = 157) and Study II (N = 73)

Variable	Frequencies (%), unless otherwise indicated	
	Study I	Study II
Gender		
Women	99.4	91.8
Men	0.6	8.2
Age	Median = 36-40 years	Mean = 26.5 years Standard Deviation = 3.4
Weekly working hours		
8-16 h	8.3	1.4
17-24 h	27.4	8.2
25-32 h	33.7	41.1
More than 32 h	30.6	47.9
Employment situation		
In paid employment	51	74
Self-employed	38.9	17.8
In paid employment and self-employed	10.2	8.3

3.3 | Prior burnout experience

In Study I, about one out of fifteen (6.4%) dental hygienists, reported to have had prior experiences with burnout, whereas in Study II, one out of six (16.4%) young professional dental hygienists reported to have had prior experiences with burnout. Table 4 shows the scores and frequencies of the UBOS-C and UBOS-A per dimension, in line with the test Manual norm tables for “Employees with symptoms of burnout” (UBOS-C; 2, p. 54 and for (UBOS-A; 2, p. 57). Because of a small number of dental hygienists (N = 10) and of young professionals (N = 12), and because it was clearly visible to the naked eye, no comparison of mean scores on the dimensions was statistically tested between these participants with the test Manual norm tables for “Employees with symptoms of burnout” (UBOS-A; 2, p. 57, UBOS-C; 2, p. 54).

TABLE 2 Dimensions, scores, frequencies, mean, SD, SE of Study I UBOS-A (N = 157)

Dimension	Scores		Frequencies (%)		Mean, SD, (SE)
	Study I UBOS-A ^a	Study I UBOS-A ^b	Study I UBOS-A ^a	Study I UBOS-A ^b	
EE	Very low < 0.19	Very low < 0.19	4 (2.5)	4 (2.5)	1.58 ± 0.99 (0.08)
	Low 0.20-0.99	Low 0.20-0.79	41 (26.1)	21 (13.4)	
	Average 1.00-2.19	Average 0.80-1.99	77 (49.0)	82 (52.2)	
	High 2.20-4.19	High 2.00-3.63	31 (19.7)	44 (28.0)	
	Very High > 4.20	Very High > 3.64	4 (2.5)	6 (3.8)	
MD	Very low < 0.00	Very low < 0.00	30 (19.1)	30 (19.1)	0.88 ± 0.84 (0.07)
	Low 0.01-0.49	Low 0.01-0.49	22 (14.0)	22 (14.0)	
	Average 0.50-1.99	Average 0.50-1.74	93 (59.2)	82 (52.2)	
	High 2.00-3.49	High 1.75-2.99	9 (5.7)	18 (11.5)	
	Very High > 3.50	Very High > 3.00	3 (1.9)	5 (3.2)	
C	Very low < 2.60	Very low < 2.49	1 (0.6)	1 (0.6)	4.78 ± 0.86 (0.07)
	Low 2.61-3.66	Low 2.50-3.49	10 (6.4)	10 (6.4)	
	Average 3.67-4.99	Average 3.50-4.82	—	62 (39.5)	
	High 5.00-5.79	High 4.83-5.49	—	41 (26.1)	
	Very High > 5.80	Very High > 5.50	146 (93)	43 (27.4)	

^aAs compared to the norm table for “Healthy Employee” in the test Manual (2, p. 57).

^bAs compared to the norm table for “Health Care” in the test Manual (2, p. 95).

3.4 | UWES-9—Study II

To be able to present the individual standardization in percentages, the scores on the UWES-9 and the subscales were recoded into 3 categories, as “(very) low”, “moderate,” and “(very) high” level of work engagement (see Table 5).

Nine out of ten of the young professionals in this study reported a moderate to (very) high level of work engagement. This means that, relatively, many young professionals experienced at least once a week to daily a moderate to high level of well-being at their work. Just up to 10% of the young professionals reported to experience (very) low level of well-being at their work. The mean levels of work engagement on the three dimensions for young professionals in Study II compared with the Manual norm table¹⁰ and the UWES-9 scores for Dutch dental hygienists¹² are presented in Table 6.

As compared with the norm table, on the full scale and on the dimensions Dedication and Absorption significant scores were found in young professionals, respectively, ($M^{\text{sample}} = 4.30$ vs $M^{\text{norm}} = 3.74$), $t(9750) = 4.07$, $P < .00$, $SEd = 0.14$; on the dimensions Dedication ($M^{\text{sample}} = 4.61$ vs $M^{\text{norm}} = 3.88$), $t(9750) = 4.50$, $P < .00$, $SEd = 0.16$, and Absorption ($M^{\text{sample}} = 4.12$ vs $M^{\text{norm}} = 3.74$), $t(9750) = 4.97$, $P < .00$, $SEd = 0.16$. Only on the dimension Vigour, no significance was found: ($M^{\text{sample}} = 4.14$ vs $M^{\text{norm}} = 4.01$), $t(9750) = 0.97$, $P = .33$ ns, $SEd = 0.13$. Thus, the young professionals scored relatively high on dedication and absorption, but not on vigour.

In comparison with the level of work engagement found in a previous study among Dutch dental hygienists (DDH; 12), young professionals had a significant lower mean score on the full scale, on

Vigour, Dedication and Absorption [$(M^{\text{sample}} = 4.30$ vs $M^{\text{DDH}} = 4.77)$, $t(561) = 4.01$, $P < .00$, $SEd = 0.12$; ($M^{\text{sample}} = 4.14$ vs $M^{\text{DDH}} = 4.74$), $t(561) = 4.84$, $P < .00$, $SEd = 0.12$; ($M^{\text{sample}} = 4.61$ vs $M^{\text{DDH}} = 5.08$), $t(561) = 3.93$, $P < .00$, $SEd = 0.12$, and ($M^{\text{sample}} = 4.12$ vs $M^{\text{DDH}} = 4.48$), $t(561) = 2.55$, $P < .00$, $SEd = 0.14$ respectively]. Noteworthy, the difference in mean scores between the young professionals and dental hygienists was extremely significant. In Study II, a significant negative correlation was found between the level of work engagement, UWES-9 and burnout UBOS-C ($r = -0.269$, $P < .00$), indicating that an enhanced level of work engagement was associated with less symptoms related to burnout.

Both studies found a low prevalence of burnout. In Study II, young professionals scored significantly higher on the two dimensions EE and DP and equally on MD, than dental hygienists in Study I, [$(M^{\text{YP}} = 1.98$ vs $M^{\text{DH}} = 1.58)$, $t(228) = 2.60$, $P < .00$, $SEd = 0.15$ and ($M^{\text{YP}} = 1.17$ vs $M^{\text{DH}} = 0.88$), $t(228) = 2.43$, $P < .02$ $SEd = 0.12$, respectively]. No significance was found on the dimension C that indicates PD, [$(M^{\text{YP}} = 4.72$ vs $M^{\text{DH}} = 4.78)$, $t(228) = 0.51$, $P = .61$, $SEd = 0.12$, ns] (Tables 2 and 3).

4 | DISCUSSION

The studies were conducted to obtain insight into the prevalence of burnout among Dutch dental hygienists using two Dutch versions of the Utrecht Burnout Scale (UBOS).^{1,2} The first study among dental hygienists examined the dimensions of the UBOS-A: (Emotional) Exhaustion; Mental Distance and Competence. The second study

TABLE 3 Dimensions, scores, frequencies, mean, SD, SE of Study II UBOS-C (N = 73; N male = 6; N female = 67)

Dimension	Scores			Frequencies (%)			Mean, SD, (SE)
	Study II UBOS-C ^a	Study II UBOS-C ^b	DP4	Study II UBOS-C ^a	Study II UBOS-C ^b	DP4	
EE	Very low < 0.37	Very low < 0.38	—	—	6 (8.2)	—	1.98 ± 1.27 (0.15)
	Low 0.38-0.99	Low 0.39-1.12	4 (5.5)	—	11 (15.1)	—	
	Average 1.00-2.37	Average 1.13-2.49	12 (16.4)	—	33 (45.2)	—	
	High 2.38-3.62	High 2.50-3.61	34 (46.6)	—	13 (17.8)	—	
	Very High > 3.63	Very High > 3.62	23 (31.5)	—	10 (13.7)	—	
DP male	Very low < 0.19	Very low < 0.20	—	—	10 (13.7)	8 (11.0)	DP5 1.17 ± 0.85 (0.10)
	Low 0.20-0.59	Low 0.19-0.59	1 (16.7)	1 (16.7)	5 (6.8)	20 (27.4)	
	Average 0.60-1.79	Average 0.60-1.79	2 (33.3)	3 (50.0)	41 (56.2)	29 (39.7)	
	High 1.80-2.79	High 1.80-2.78	3 (50.0)	1 (16.7)	15 (20.5)	13 (17.8)	
	Very High > 2.80	Very High > 2.79	—	1 (16.7)	2 (2.7)	3 (4.1)	
DP female	Very low < 0.19	Very low < 0.20	4 (6.0)	8 (11.9)	10 (13.7)	8 (11.0)	
	Low 0.20-0.59	Low 0.21-0.59	10 (14.9)	19 (28.4)	5 (6.8)	20 (27.4)	
	Average 0.60-1.59	Average 0.60-1.59	36 (53.7)	24 (35.8)	38 (52.1)	26 (35.6)	
	High 1.60-2.59	High 1.60-2.58	15 (22.4)	13 (19.4)	18 (24.7)	15 (20.5)	
	Very High > 2.60	Very High > 2.59	2 (3.0)	3 (4.5)	2 (2.7)	4 (5.5)	
PA	Very low < 2.99	Very low < 3.00	2 (2.7)	—	2 (2.7)	—	4.72 ± 0.78 (0.09)
	Low 3.00-3.70	Low 3.01-3.70	4 (5.5)	—	4 (5.5)	—	
	Average 3.71-4.70	Average 3.71-4.70	22 (30.1)	—	22 (30.1)	—	
	High 4.71-5.56	High 4.71-5.56	34 (46.6)	—	34 (46.6)	—	
	Very High > 5.57	Very High > 5.57	11 (15.1)	—	11 (15.1)	—	

^aAs compared to the norm table for "Healthy Employee" in the test Manual (2, p. 53).

^bAs compared to the norm table for "Health Care" in the test Manual (2, p. 79).

used the UBOS-C² that includes the dimensions (Emotional) Exhaustion; Depersonalization, and Personal Accomplishment, as well as the UWES-9¹⁰ that includes three dimensions of work engagement: Vigour, Dedication and Absorption.

Both studies found a low prevalence of burnout among dental hygienists compared with the norm scores.² This is in contradiction with the results of the study among advanced emergency medical technicians (paramedics) that showed a high level of work-stress burnout.³ Findings of study showed that Dutch dental hygienists are not at risk for burnout. That may be considered as a reasonable result, because in a previous study among dental hygienists the level of work engagement turned out to be (very) high.¹² Whereas burnout is considered to be the negative, opposite pole of work engagement, on the basis of the present study it can be concluded that Dutch dental hygienists have no negative working attitude and experience a high level of well-being at their work.

The exploratory findings of Study II showed also that Dutch young dental hygienists are not at risk for burnout. These findings are not completely in line with earlier research,^{3,16} which showed that dental nurses' scores on the Maslach Burnout Inventory-Human Service Survey (MBI-HSS) were similar to those of high burnout groups. In addition, the young professional dental hygienists appeared to have a moderate to (very) high level of work engagement. These present

outcomes are in line with the previously mentioned work engagement study among dental hygienists in the Netherlands too.¹²

An American study showed a prevalence of burnout as high as 38% among the relatively young dental hygiene students.²⁷ However, students will experience burnout not primarily as a result of working as a professional, but rather due to stress experienced as a student, indeed also medical students²⁸ report high levels of burnout. Moreover, a different type of scale is used for students.² In 2017, a survey among Dutch medical professionals found that 13.9% of the participated Dutch dentists reported burnout-related complaints,¹⁹ and also more (para)medical workers^{29,30} and medical students²⁸ than dental hygienists seem to exhibit burnout symptoms.

As there are three versions of the UBOS available, in Study II, the more specific UBOS-C version, which is designed for medical personnel and for professionals in human services, was used for the target group of young professional dental hygienists. Similar to the UBOS-A, the UBOS-C is appropriate to assess three dimensions of burnout: Emotional Exhaustion; Depersonalization (ie Mental Distance) and Personal Accomplishment (ie Competence) in participants working in a diverse array of occupations, for instance nurses, physicians, health aides, social workers, health counsellors, therapists and so on.^{1,2} Given the Cronbach's α 's found in subscales in both studies, the psychometric properties of the Dutch versions of

TABLE 4 Dimensions, scores, frequencies of UBOS-A (N = 157), of UBOS-C (N = 77) and of participants reported to have had prior experiences with burnout. N = 10 and N = 12, resp.)

Dimension	Scores	Frequencies (%)	Prior burnout experience
Study I UBOS-A ^a			
EE	Very low < 0.79	25 (15.9)	—
	Low 0.80-2.59	106 (67.5)	4(40.0)
	Average 2.60-4.89	25 (15.9)	5 (50.0)
	High 4.90-5.89	1 (0.6)	1 (10.0)
	Very High > 5.60	—	—
MD	Very low < 0.24	30 (19.1)	—
	Low 0.25-1.24	75 (47.8)	3 (30.0)
	Average 1.25-3.69	49 (31.2)	6 (60.0)
	High 3.70-5.09	3 (1.9)	1 (10.0)
	Very High > 5.10	—	—
C	Very low < 2.00	1 (0.6)	1 (10.0)
	Low 2.01-3.99	24 (15.3)	2 (20.0)
	Average 4.00-4.65	35 (22.3)	2 (20.0)
	High 4.66-5.29	44 (28.0)	3 (30.0)
	Very High > 5.30	53 (33.8)	2 (20.0)
Study II UBOS-C ^b			
EE	Very low < 1.74	39 (5.4)	2 (16.7)
	Low 1.75-2.99	18 (24.7)	3 (25.0)
	Average 3.00-4.24	9 (12.3)	2 (16.7)
	High 4.25-4.99	6 (8.2)	4 (33.3)
	Very High > 5.00	1 (1.4)	1 (8.3)
DP	Very low < 0.00	11 (15.1)	1 (8.3)
	Low 0.50-1.29	4 (5.5)	1 (8.3)
	Average 1.30-2.49	31 (42.5)	6 (50.0)
	High 2.50-3.49	25 (34.2)	3 (25.0)
	Very High > 3.50	2 (2.7)	1 (8.3)
PA	Very low < 2.00	1 (1.4)	1 (8.3)
	Low 2.01-3.00	1 (1.4)	—
	Average 3.01-4.07	12 (16.4)	1 (8.3)
	High 4.08-4.40	6 (8.2)	3 (25.0)
	Very High > 4.41	53 (72.6)	7 (58.3)

^aAs compared to the norm table for "Employees with symptoms of burnout" in the test Manual (2, p. 57).

^bAs compared to the norm table for "Employees with symptoms of burnout" (2, p. 54).

the UBOS-A, UBOS-C and UWES-9 among both dental hygienists and young professionals dental hygienists were fairly consistent with those reported in the Manual.^{2,10} Noteworthy, in the test Manual,

TABLE 5 Dimensions, scores, frequencies, mean, SD Study II UWES-9 (N = 73)

Dimension	Scores	Frequencies (%)
VI	Low < 3.25	14 (19.2)
	Moderate 3.26-4.80	33 (45.2)
	High > 4.81	26 (35.6)
DE	Low < 2.90	5 (6.8)
	Moderate 2.91-4.70	28 (38.4)
	High > 4.71	40 (54.8)
AB	Low < 2.33	5 (6.8)
	Moderate 2.34-4.20	28 (38.4)
	High > 4.21	40 (54.8)
UWES-9 Total	Low < 2.88	7 (9.6)
	Moderate 2.89-4.66	35 (47.9)
	High > 4.67	30 (42.5)

Note: As compared to the norm table for UWES-9 (N = 9679) in the test Manual (8, p. 28).

TABLE 6 Mean scores (M) and standard deviations (SD) on the UWES-9 and on the three engagement subscales for young professional compared with the manual norm scores UWES-9 and the UWES-9 scores for Dutch dental hygienists

Dimension	Mean, SD		
	Current study (N = 73)	UWES-9 (N = 490)	UWES-9 manual (N = 9679)
VI ^{*,#}	4.14 ± 1.27	4.74 ± 0.94	4.01 ± 1.14
DE ^{*,#}	4.61 ± 1.30	5.08 ± 0.89	3.88 ± 1.38
AB ^{*,#}	4.12 ± 1.15	4.48 ± 1.12	3.35 ± 1.32
UWES-9 Total [*]	4.30 ± 1.14	4.77 ± 0.90	3.74 ± 1.17

Abbreviation: UWES, Utrecht Work Engagement Scale.

^{*}Significantly different from norm scores ($P < .01$).

[#]Significantly different from Dutch dental hygienists ($P < .01$).

the Cronbach's α of the Depersonalization subscale is 0.66 (2, p. 25). If one of the 5 items (ie "I feel that patients blame me for their problems"), because of a low item-total correlation of this subscale was removed, the Cronbach's α increased from $\alpha = .63$ into $\alpha = .69$ (DP; 4 items); this fits better with the internal consistency of the UBOS-C in the test Manual. However, no significant differences were found in a comparison with the mean score of the DP-5 items or a comparison with the mean score of the DP-4 items.

As usual in survey studies, socially desirable answers could be a limitation. In addition, the sample size of Study II was not very high, although enough to assess medium effect sizes. Furthermore, as Study II was a pilot study, another limitation is that the sample may not fully reflect the population of Dutch young professional dental hygienists. The response rates may not seem very high in both studies. However, in this type of studies, a response rate of around 40% is very common and even relatively high. Therefore, this response rate may not have

had a large influence on our results, especially because the characteristics of participants were normally distributed, and the sample reflected a very heterogeneous population, as shown in Table 1. Nevertheless, the findings may be not completely representative for the population of young professional dental hygienists in Study II. An expanded study with a larger sample size would lead to a more accurate result. The fact that these participants have few years of work experience may be a possible explanation for the fact that their level of work engagement was moderate to high in comparison with the more experienced dental hygienists with a (very) high level of work engagement.¹² Conceivably, these young professional dental hygienists have also less experience with complex treatments or demanding patients and might overestimate their accomplishments. Although participants were asked about prior burnout, both studies did not measure actual formal diagnosis of burnout. Definite statements about the comparison of frequencies of participants who reported to have a prior burnout and the test Manual norm tables for "Employees with symptoms of burnout" (UBOS-C; 2, p. 54 and UBOS-A; 2, p. 57) can therefore not be made with certainty.

The extent to which the prevalence of burnout among Dutch dental hygienists increases across time⁴ is a relevant question, and whether it could be answered by the present research findings, is questionable. As a consequence of task reallocation within the field of oral health care,³¹ the task reallocation could lead to changes in perceived work experiences or it may have an impact on intrinsic and extrinsic factors of job satisfaction of dentists.^{3,16,18,19,32-34} Therefore, it is not clear if the prevalence of burnout among Dutch oral health professionals would be higher in the Netherlands than elsewhere. Especially because the supposed burnout epidemic is not so bad in the Netherlands, as about 7% have serious burnout complaints instead of the frequently heard 17%.³⁵ Moreover, with 18%, the Netherlands has the most enthusiastic workforce in Europe, including the Dutch dental hygienists with a (very) high level of work engagement, and recently knowing that this is a protective factor for burnout.^{12,35} Using a measurement as the UBOS may have its limitations for an adequate diagnose of burnout among oral health professionals, and using the new scale Burnout Assessment Tool (BAT;^{4,35,36}), an interview and clinical examination with a psychologist and/or a doctor would be preferable. Comparison with previous studies about burnout prevalence is for that reason tricky and complex, because a main question arises immediately: how can burnout be assessed?^{4,14-17,35} Recently, it has been concluded that a paradox exists between the extremely large number of scientific publications and the available limited empirical knowledge and proposed three explanations for that paradox. First, the nature of burnout is still unclear; second, research focuses predominantly on mild burnout complaints rather than on burnout as a mental disorder, and third, the most relevant kind of research is also the most expensive and cumbersome.^{4,35} Finally, there are no widely accepted criteria, to define a high level of burnout. In both studies, simply the test Manual (2, p. 8) was followed. As noted in this test Manual, the criterion for a high level of burnout is purely statistical and does not have a clinical meaning.

In conclusion, further research to redefine and re-operationalize burnout among dental hygienists and public health workers is essential, because in both studies the two versions of the "out-dated"

UBOS to measure burnout as a negative and opposite outcome of the UWES were used. Moreover, both studies were restricted to the working situation of Dutch dental hygienists, young professionals and older, more experienced oral health professionals. Also more research is needed to gain more information about the nowadays influence of task reallocation, interprofessional and multi-disciplinary collaboration, including the intended experiment on burnout and on the level of work engagement in dental hygienists, dentists and in public health workers/nurses, for instance dental nurses.

5 | CONCLUSION

The first study provides insight in the prevalence of burnout among Dutch dental hygienists and on the three dimensions of burnout: (Emotional) Exhaustion; Mental Distance and Competence, which may indicate employee well-being in this group of oral health dental hygienists. The second study provides insight in employee well-being of young professional Dutch dental hygienists, that is on the three dimensions of burnout (Emotional) Exhaustion; Depersonalization and Personal Accomplishment, and on the three dimensions of work engagement: Vigour, Dedication and Absorption. To conclude, Dutch dental hygienists are not at risk for burnout and the young professionals appear to have a moderate to high level of work engagement. A high level of work engagement coincides with a low level of symptoms related to burnout.

6 | CLINICAL RELEVANCE

6.1 | Scientific rationale for the studies

There has been no research on the topic of burnout among Dutch dental hygienists. In these studies, the prevalence of burnout in a sample of Dutch dental hygienists are measured. Also results of on the three dimensions of burnout and on work engagement are evaluated and compared with the test Manual norms.

6.2 | Principal findings

Unlike what often is assumed, in this paramedical profession of Dutch dental hygienists, young professionals, as well as older and more experienced dental hygienists there is no evidence of burnout, measured with the present scales.

6.3 | Practical implications

There is no need for intervention aimed at preventing or reducing burnout among Dutch dental hygienists. These studies will be useful to future researchers and new studies.

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CONFLICT OF INTEREST

All authors declare that they have no conflicts of interest. No funding for these two studies was obtained.

AUTHOR CONTRIBUTION

Y.A.B.B.-W. contributed to the conception of both studies. Y.A.B.B.-W. and O.A.F. designed Study I, O.A.F. and V.R.Y.H. supported the students with the data collection, and Y.A.B.B.-W. together with O.A.F. conducted the analyses. For Study II, Y.A.B.B.-W. and S.E.M.O. contributed to the design, S.E.M.O. supported the students with the data collection. Y.A.B.B.-W. and O.A.F. conducted the analyses, and S.E.M.O. was partly involved. Y.A.B.B.-W. drafted the manuscript, and O.A.F. contributed to the interpretation of the data. Y.A.B.B.-W. and O.A.F. had the major role in the writing, S.E.M.O. and V.R.Y.H. gave essential feedback on the final manuscript. W.B.S. contributed to revising the draft manuscript critically for important intellectual content. All authors approved the final manuscript.

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