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Job strain is prospectively associated with a lower frequency of fruit consumption in schoolteachers

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Abstract

Objective: The current study aimed to analyse the prospective association between perceived work demand and changes in eating behaviours in schoolteachers.
Design: This was a prospective cohort study with self-reported information obtained on the Demand Control Support Questionnaire and eating behaviours at baseline and after a 2-year follow-up. The analyses were performed using mixed-effects models adjusted for the main confounders.
Setting: The setting consisted of elementary and secondary schools located in a large city in southern Brazil.
Participants: The participants were 502 schoolteachers (65·9 % females, median age of 42·7 years [interquartile range 34·2, 49·4]).
Results: A total of 39·2 % of the schoolteachers were classified at baseline with job strain, 28·9 % with passive job, 12·2 % with active job and 19·7 % with low-strain job. In the fully adjusted models, compared with teachers who reported low-strain job, those with higher levels of job strain were more likely to reduce (coefficient = 0·064; 95 % CI 0·018, 0·109) and less likely to increase (coefficient = −0·066; 95 % CI −0·115, −0·016) their frequency of fruit consumption regardless of socio-demographic, lifestyle, health conditions and social support at work.
Conclusion: Job strain plays a relevant role in the frequency of fruit consumption over time in schoolteachers. The balance between demand and control at work must be considered in strategies for promoting healthy eating despite perceived social support.

Keywords
Nutrition
Psychological stress
Teacher
Occupational health

Work and working conditions play a crucial role in how personal and social activities are planned. Stressful working conditions, for instance, can lead to poorer food-related choices, given that the availability, costs and free time necessary for consumption may play a more important role than nutritional quality or specific individual needs[1]. In this context, an increase in the frequency of unhealthy eating behaviours has been observed for different adult and working populations, such as the consumption of fast food and preprepared food, usually rich in fat, sugar and salt, for which there is consistent evidence suggesting an increased risk of obesity, metabolic syndrome, cardiovascular events and cancer[1,2].

Most studies on eating behaviours and occupational health have included individuals who share the same workplace, such as a hospital[3], while others have analysed joint data from different professional categories[4] and institutions[1]. These studies commonly involve health professionals[5,6] and white collar workers[4]. Most professions have specific working conditions, with unique socio-demographic and lifestyle characteristics; therefore, it is relevant to explore the associations between those conditions and eating behaviours.

Job strain has been associated with health risk behaviours in different populations[1,3,4,7,8] and is considered a risk factor for chronic diseases, such as hypertension and musculoskeletal and mental diseases[9]. Regarding the relationship between work and eating behaviours, a study with Japanese workers showed that higher workloads are associated with an increased risk of poorer eating habits,

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although their analysis did not control for confounding variables[3]. The Demand Control Support Questionnaire (DCSQ)[10] is one of the most commonly used tools for assessing the psychosocial conditions of the work environment and addressing the relationship between psychological demands and control over the work process. The coexistence of perceived high psychological demands and low control over the work process generates what is called high strain work or job strain[10]. Moreover, it has been previously discussed that social support at work, which is a dimension that has been added to the DCSQ[11], mitigates the negative effects of high strain job on levels of work performance[12].

Thus far, there are no studies that address the relationship between job strain using the DCSQ and eating behaviours in teachers. Teaching is a professional activity of great social relevance that is often performed under working conditions with the potential to cause health damage, such as poor infrastructure, ergonomics problems, a high number of students per classroom, exposure to noise and detrimental psychological burden[13,14]. Many studies involving this population have focused on health problems that could influence absenteeism, predominantly chronic mental health[15] and physical conditions[16]. Previous studies have shown that teachers' health is affected by work in different ways, leading to stress[17], burnout syndrome[17,18], exposure to school violence[19], anxiety and depression[17]. In addition to affecting teachers' own health, these professionals are important role models for their students, and their knowledge, attitudes, and eating behaviours may be barriers to promoting healthy food habits for their students[20]. Hence, given that the school environment plays an important role in shaping and sustaining healthy eating behaviours in children and youth[21], a better understanding of how job demand and control can affect teachers' eating behaviours would be helpful in regard to developing support strategies designed to promote better daily food practices for teachers, thereby promoting a healthier school environment that could potentially influence students' eating behaviours.

Therefore, the current study aimed to analyse the association between job strain and changes in the frequency of selected eating behaviours in Brazilian schoolteachers.

Methods

This was a longitudinal study performed with elementary and secondary schoolteachers as part of the PRO-MESTRE study, which was conducted between 2012 and 2015, with the objective of analysing health, lifestyle and working aspects[18,22]. In brief, the study included a census of teachers from the twenty largest elementary and secondary public schools (i.e. those with more than seventy teachers) in Londrina, which is a large city in southern Brazil. The baseline inclusion criteria were as follows: teaching in a classroom for at least one period in a week; being responsible for one or more disciplines and not being on medical or work leave during the research data collection or 30 d after the end of it. The baseline data collection occurred between August 2012 and June 2013. A self-administered questionnaire and personal interviews were carried out by trained undergraduate and graduate students[22]. After 2 years (2014–2015), the application of the DCSQ questionnaire and the interviews were repeated.

The DCSQ[10] was administered in the form a self-administered questionnaire at baseline and at follow-up. For this purpose, a reduced version, which has been validated in Brazil and with good psychometric properties[23], was used. The DCSQ consists of three dimensions, namely, demand, control and social support, and each dimension score is calculated as the sum of the answers for specific questions[10,24]. In the present analyses, the median of each score was used to divide the respondents according to low or high levels of demand, control and social support[24]. *Job strain* (exposure) was the main category of the independent variable DCSQ analysed in the current study and was defined when low control (≤19 points) and high demand (≥16 points) were concomitantly detected. Those who scored high control and low demand (*low-strain job*) composed the reference group. The groups with high control and high demand (*active job*) and those with low control and low demand (*passive job*) were also considered as secondary categories of the exposure variable. Moreover, the DCSQ includes a *social support* dimension, which consists of six items that are oriented towards the perception of social support in the worksite environment[11]. In the current study, the social support dimension was first analysed as a potential effect modifier (low social support: ≤18 points; high social support: >18 points) and, in sequence, as a confounding variable (continuous social support score), as explained in more detail below.

Information about the following eating behaviours (outcomes) was collected at baseline and at follow-up: the weekly frequency of the consumption of fruits and other vegetables and meal replacement by snacks (never, 1–3 times per month, 1–2 times per week, 3–7 times per week), the removal of visible fat when consuming red meat and the removal of skin from chicken meat (never or rarely, sometimes, frequently or always). Individuals who reported not consuming red meat (*n* 24) or chicken meat (*n* 38) at baseline or at follow-up were excluded from the analyses only for these corresponding behaviours.

Information on the following variables, considered as potential confounders on the association between job strain and eating behaviours, was also obtained both at baseline and at follow-up: sex (male or female), age (years), cohabitation (living alone or with a spouse or partner), approximate monthly family income (low: <USD 1500, intermediate: USD 1500-USD 2499, or high: ≥USD

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2500; USD 1 = BRL 2·02 at middle point of follow-up, October 2013), alcohol intake (yes or no), smoking (yes or no), sleep quality (according to the Pittsburgh Sleep Quality Index score)[25], free-time physical activity (yes or no), obesity (BMI ≥ 30 kg/m^2), based on self-reported weight and height), hypertension, diabetes, dyslipidaemia, anxiety and depression (based on the report of medical diagnosis or use of specific medication).

Initially, the Shapiro-Wilk normality test was applied to explore the continuous variables (age, BMI and Pittsburgh Sleep Quality Index score). As none of them fit the normal distribution, they were described with medians and interquartile ranges, and the nonparametric Wilcoxon sum-rank test was applied to compare baseline and follow-up values. For the categorical variables, the McNemar test was used to compare baseline and follow-up frequencies.

To analyse the associations between DCSQ categories (exposure) and eating behaviours (outcomes), we created change variables. For this purpose, the variables corresponding to each eating behaviour both in the baseline and in the follow-up were recoded either from zero to three (the number of response options) or from zero to two (for the behaviours removal of fat from red meat or skin from chicken meat), with higher numbers indicating higher frequencies. In sequence, change variables were calculated by subtracting the baseline value from the follow-up value of the corresponding eating behaviour so that each change variable could vary from three fewer categories to up to three more categories. To discriminate the magnitude of changes (according to the number of changing categories from baseline to follow-up, either increasing or decreasing), two continuous dependent variables were created for each eating behaviour: a) decreased 0, 1, 2 or 3 frequency categories and b) increased 0, 1, 2 or 3 frequency categories. Operationally, when the variable under analysis was a reduced frequency (the aforementioned 'a' item), those individuals who increased their frequency in the follow-up were disregarded, and vice versa.

The mixed-effects regression models[26], which considered data from both baseline and follow-up and allowed for fixed and random effects, were used to estimate the coefficient betas (β) and their respective 95 % CIs for the associations between the demand–control categories and the reduced or increased frequency (*v.* maintained frequency) of the eating behaviours. Given that social support has been considered an effect modifier when the demand–control model is associated with health outcomes[27], we explored this potential effect by adding interaction terms (demand–control categories multiplied by the binary variable of lower or higher social support, according to the median of 18 points) into the adjusted models. Since no evidence of interaction was observed ($P_{\text{for interaction}} > 0{\cdot}20$ for all outcomes), the third model included all the variables that were included in the previous model and, in addition, the social support score obtained through the DCSQ as a potential confounder. Therefore, all the analyses were adjusted for sex, age, cohabitation, family income, smoking, alcohol intake, sleep quality, free-time physical activity, BMI, hypertension, diabetes, dyslipidaemia, anxiety, depression and social support score.

Statistical analyses were performed using IBM SPSS Statistics for Windows, version 24 (IBM Corp.). For all analyses, the level of statistical significance was set at $P < 0{\cdot}05$.

Results

At baseline, sixty-three (5·6 %) of the 1·126 teachers who met the inclusion criteria refused to participate, and eighty-five (7·5 %) could not be contacted after five attempts on different days. Thus, the final sample at baseline included 978 (86·9 %) teachers. After 2 years of follow-up (mean 747 d, sd 15·7 d), 366 individuals failed to attend the follow-up interviews due to a major labour strike and were excluded from analyses. Among the 612 remaining subjects, twenty-one (3·4 %) refused to participate, and sixty (6·8 %) could not be located. The final follow-up sample included 531 participants, among which twenty-nine (2·9 %) did not respond to the DCSQ or failed to provide answers for the eating behaviours or confounding variables included in the current study. Thus, the final sample size at follow-up for this cohort study comprised 502 participants (response rate: 51·3 %) (Figure 1). Please, see in the Supplemental material (Table S1) the characteristics of the total sample at baseline (*n* 978) and of the sample included in the present analysis (*n* 502).

The study population had a predominance of females (65·9 %) and a median age of 42·7 years (interquartile range: 34·2, 49·4) at baseline. According to the DCSQ evaluated at baseline, 39·2 % (*n* 197) of the teachers were classified as being exposed to job strain, while 19·7 % (*n* 99) were characterised as having low-strain job (i.e. high control and low demand). After the follow-up period, some changes were observed, such as a reduction in alcohol consumption and physical activity. However, there was an increase in the percentage of hypertensive patients and in the Pittsburgh Sleep Quality Index score, indicating a worsening of sleep quality (Table 1).

The frequencies of each eating behaviour at baseline and follow-up are presented in detail in Table 2. Overall, the frequency of eating behaviours remained stable throughout the follow-up, since more than 70·0 % of the schoolteachers reported the same frequency at baseline and after 2 years (Table 3). An exception was observed for replacing meals with snacks, for which 22·9 % reported reducing and 33·1 % reported increasing the frequency of this behaviour.

In the fully adjusted analyses, schoolteachers reporting job strain were more likely to reduce (coefficient = 0·064; 95 % CI 0·018, 0·109) and less likely to increase (coefficient = −0·066; 95 % CI −0·115, −0·016) their

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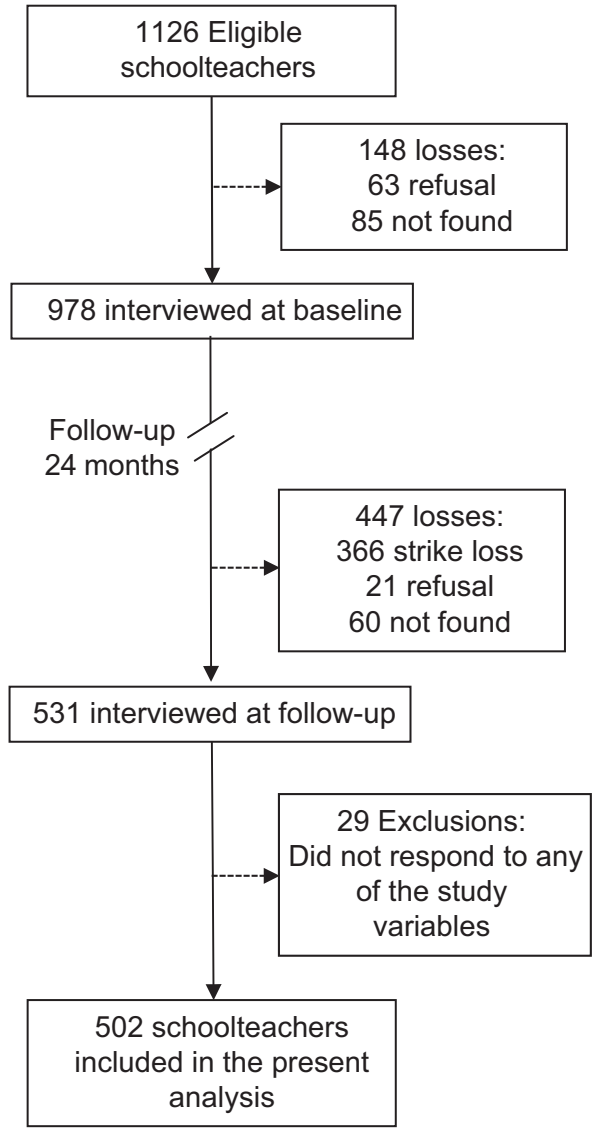

Fig. 1 Flow diagram for study participants

frequency of consumption of fruits compared with schoolteachers who reported low-strain job (Figure 2). In addition, schoolteachers with passive job were more likely to increase the frequency of skin removal from chicken meat compared with respondents with low-strain job (coefficient = 0·061; 95 % CI 0·014, 0·108). No other significant association was observed for the other eating behaviours and demand–control categories.

Discussion

In this 2-year follow-up study, exposure to job strain was associated with a higher likelihood of reducing and a lower likelihood of increasing the frequency of fruit consumption over time when compared with those with low-strain job. In addition, passive job was associated with a higher likelihood of increasing the frequency of skin removal from chicken meat compared with low-strain job. Other eating behaviour studies were not associated with exposure to job strain, passive job or active job.

Studies exploring job strain as a risk factor for eating behaviours are still scarce. According to a literature review about eating and stress at work, a consensus that acute stress at work is synonymous with unhealthy eating practices seems to be emerging[28]. Consistent with our results, some authors have found job strain to be associated with unhealthier food practices. For instance, a survey of Brazilian industrial workers indicated an association between higher levels of reported stress and infrequent fruit and vegetable consumption, although this association was observed in males but not in females[29]. In another study with workers in metropolitan Seattle perceived that work-related stress showed a borderline association with lower intake levels of fruit and vegetables[30]. In addition, a study with male Japanese workers reported that increased workplace stress from job strain may affect workers through eating behaviours[3]. A similar relationship was observed among Brazilian workers participating in the ELSA-Brasil study, as increased odds of binge eating were found to be associated with job strain[1].

In addition to partially confirming the aforementioned results, our study extends the knowledge with regard to schoolteachers and professionals who have a particular social relevance when discussing nutritional education. Although these individuals have a crucial opportunity to influence students by emphasising healthy food practices in the classroom[20], the message taught is required to be consistent with their own food practices. Some school environmental aspects have been pointed out as affecting dietary behaviours among teachers, such as the availability of cafeterias, vending machines or catering services[31]. However, this is not the case for public elementary and secondary schools in the city in which the present study was carried out and possibly in most of the public schools in Brazil. In general, according to the report of our research team members who collected data through interviews inside the schools, the public schools included in the current study have a cafeteria that is mainly used by students, while the teachers usually use a teachers' room that is equipped with tables, lockers for academic material and their belongings, and a small refrigerator to help store water and food for individual consumption. If, on the one hand, this environment is not a barrier to a healthy dietary pattern, on the other hand, the time given is generally not enough for the schoolteachers to eat, relax and prepare themselves for the next class (or even to move to another school, in some cases). Thus, given that in the current study we identified a relationship between job strain and a reduction in fruit consumption regardless of the main confounders, future studies are necessary to expand the knowledge about the facilitators of and barriers to following a healthy diet that exist both in the school environment and in the work process of teachers, which could affect teachers.

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Table 1 Baseline and follow-up characteristics of elementary and secondary Brazilian schoolteachers (*n* 502)

Variables	Baseline		Follow-up		*p*-value[a]
Age (years), median (IQR)	42·7	34·2;49·4	44·8	36·2;51·4	0·002
Sex, *n* (%)	331	65·9	331	65·9	1·000
Living alone, *n* (%)	197	39·2	192	38·2	0·560
Smoking, *n* (%)	44	8·8	44	8·8	1·000
Alcohol intake, *n* (%)	254	50·6	204	40·6	<0·001
PSQI score, median (IQR)	6	4;8	8	7;10	<0·001
Free-time physical activity, *n* (%)	250	49·8	282	56·2	0·012
BMI, median (IQR)	25·2	22·8;28·1	25·5	23·2;28·5	0·143
Hypertension, *n* (%)	76	15·1	94	18·7	0·009
Diabetes, *n* (%)	24	4·8	24	4·8	1·000
Dyslipidemia, *n* (%)	86	17·1	94	18·7	0·151
Anxiety, *n* (%)	121	24·1	106	21·1	0·125
Depression, *n* (%)	74	14·7	75	14·9	0·999
Monthly family income (USD), *n* (%)					<0·001
<1·500	110	21·9	56	11·1	
1·500–2·499	175	34·9	154	30·7	
≥2·500	217	43·2	292	58·2	
DCSQ, *n* (%)					0·001
Job strain	197	39·2	154	30·7	
Passive job	145	28·9	181	36·0	
Active job	61	12·1	46	9·2	
Low-strain job	99	19·7	121	24·1	
Social support score, median (IQR)	18	16;20	18	16;20	0·575

DCSQ, Demand Control Support Questionnaire; IQR, interquartile range; PSQI, Pittsburgh Sleep Quality Index.
[a]Obtained with the Wilcoxon sum-rank test (continuous variables) or with the McNemar test (categorical variables).

Table 2 Frequency of eating behaviours at baseline and follow-up

Eating behaviours	Baseline frequency *n*	%	Follow-up frequency *n*	%	*P*-value[a]
Consumption of fruits (*n* 502)					0·011
Never	14	2·8	15	3·0	
1–3 times per month	48	9·6	44	8·8	
1–2 times per week	113	22·5	89	17·7	
3–7 times per week	327	65·1	354	70·5	
Consumption of other vegetables (*n* 502)					0·007
Never	5	1·0	7	1·4	
1–3 times per month	13	2·6	11	2·2	
1–2 times per week	76	15·1	51	10·2	
3–7 times per week	408	81·3	433	86·3	
Meal replacement by snacks (*n* 502)					0·058
Never	115	22·9	85	16·9	
1–3 times per month	131	26·1	127	25·3	
1–2 times per week	149	29·7	169	33·7	
3–7 times per week	107	21·3	121	24·1	
Removal of visible fat from red meat (*n* 478)					<0·001
Never or rarely	92	19·2	61	12·8	
Sometimes	68	14·2	110	23·0	
Frequently or always	318	66·5	307	64·2	0·194
Removal of skin from chicken meat (*n* 464)					
Never or rarely	89	19·2	79	17·0	
Sometimes	51	11·0	68	14·7	
Frequently or always	324	69·8	317	68·3	

[a]Obtained with the McNemar test.

It is still unclear how exposure to work-related stress could affect the adoption of less healthy eating behaviours. It has been stated that a high demand/low control job (job strain) has been associated with a strong deterioration of self-efficacy[32], i.e. one's confidence in their ability to initiate and sustain a given behaviour[33]. In another study, lower job control, which is present in job strain and in passive job, was associated with binge eating[1], possibly because of the feeling of tension/anxiety generated[3], which in turn may lead to a greater tendency to consume sweets and foods rich in saturated fat instead of healthier foods, such as fruits and vegetables[34]. Moreover, high cortisol levels[35] and hormonal imbalances involving leptin and ghrelin[36] observed in stressed individuals could be

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Table 3 Frequency of changes in eating behaviours between baseline and follow-up after 2 years in elementary and secondary Brazilian schoolteachers

Eating behaviours	Decreased 3 frequency categories		Decreased 2 frequency categories		Decreased 1 frequency category		Maintained the same frequency		Increased 1 frequency category		Increased 2 frequency categories		Increased 3 frequency categories	
Consumption of fruits	2	0·4	13	2·6	45	9·0	352	70·1	75	14·9	14	2·8	1	0·2
Consumption of other vegetables	2	0·4	6	1·2	17	3·4	424	84·5	48	9·6	5	0·9	–	
Meal replacement by snacks	9	1·8	24	4·8	82	16·3	221	44·0	114	22·7	35	7·0	17	3·4
Removal visible fat from red meat	–		7	1·5	51	10·7	348	72·8	59	12·3	13	2·7	–	
Removal skin from chicken meat	–		18	3·9	34	7·3	357	76·9	37	8·0	18	3·9	–	

OBS, The categories (answers options) of frequency of the eating behaviours were as follows: for consumption of fruits, consumption of vegetables and meal replacement by snacks (*n* 502): never, 1–3 times per month, 1–2 times per week, 3–7 times per week; for removal of visible fat when consuming red meat (*n* 478) and removal of skin from chicken meat (*n* 464): never or rarely, sometimes, frequently or always.

implicated in the pathophysiological mechanisms behind the reduction in the frequencies of fruit consumption over time associated with job strain. Last, a lack of time is a frequent complaint related to job strain and has been reported to be one of the reasons for not engaging in healthy behaviours, such as healthy eating[37].

The frequency of the consumption of other vegetables, meal replacement by snacks and the removal of fat from red meat were not associated with job strain or passive job either in unadjusted or fully adjusted analyses. However, we presume that the eating behaviours studied herein are influenced by other individual and social aspects that are not considered in the present study and in more complex processes than fruit consumption, which seems to depend more on the self-regulation process[38]. It is noteworthy that changes in eating behaviours may vary among individuals according to their perception of social support in the work environment, which is a condition with the potential to mitigate the effects of stress[39–41]. In turn, self-regulation appears to be attenuated among people with higher levels of social support[42]. Our results partially corroborate previous findings that showed that fruit consumption is reduced in those with lower social support[39,40,42]. Although we agree that social support plays a role in the potential impacts of job strain on lifestyle changes, no interaction was found regarding this and the other DCSQ dimensions on the main study associations. In addition, the findings were quite similar after the inclusion of the continuous social support score as a confounder. This low level of influence of social support in our analyses could be specifically related to the teaching profession, since schoolteachers spend more of their worktime in the classroom with students than with other colleagues and superiors, from whom support could be provided.

Last, an unexpected finding was the significant association between passive job and a higher likelihood of increasing the frequency of skin removal from chicken meat. In contrast, it would be more reasonable to suggest that the coexistence of lower demand and lower control at work (passive job) would lead to an inertia and maintenance of lifestyle behaviours or even an increase in unhealthy behaviours, such as not removing the chicken skin. As there is much less evidence about this specific eating behaviour compared with others, future longitudinal studies are required to explore whether passive job could have beneficial effects on this eating behaviour.

Some methodological aspects must be acknowledged to the correct interpretation of the present results. First, eating behaviours, job demand, control, social support and other lifestyle and health confounders included in our analyses may have changed several times during the follow-up, and information on these variables was obtained only at baseline and after 2 years. In addition, significant changes occurred in some variables from baseline to follow-up (e.g. lower % alcohol intake, higher % free-time physical activity

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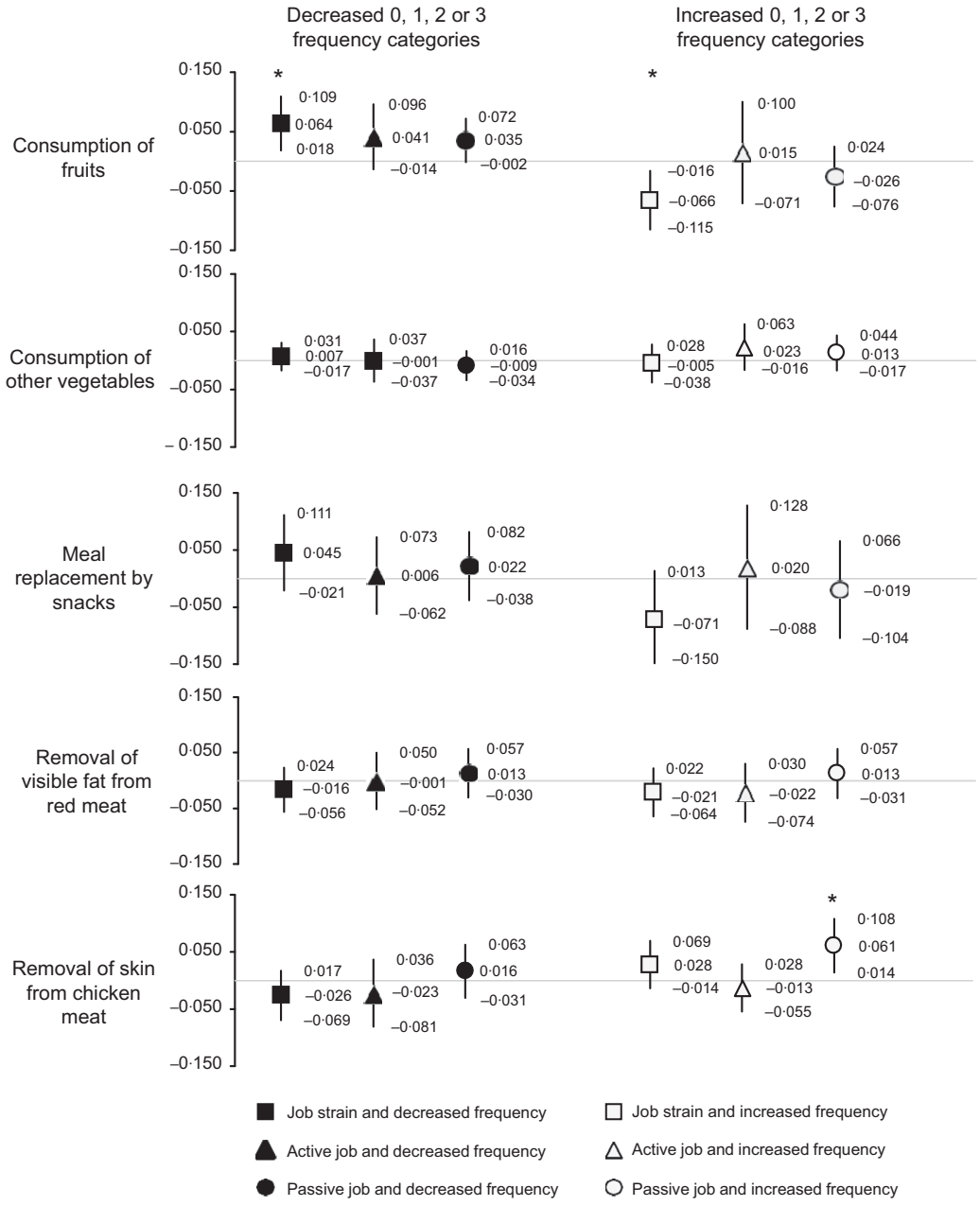

Fig. 2 Association between Demand Control Support Questionnaire (DCSQ) (exposure) and changes in the frequency of eating behaviours (outcomes: decreased *v.* maintained frequency and increased *v.* maintained frequency) by social support perception after 2 years of follow-up in elementary and secondary Brazilian schoolteachers

practitioners, lower % job strain and higher % passive job and low strain). This was partially controlled with the statistical approach used, since changes over time are taken into account in mixed-effects models, which considered both baseline and follow-up information to enhance the precision of estimating coefficients and 95 % CIs of the study associations[26]. Second, our behavioural data are based on self-reported information; thus, the accuracy of the results may be affected by recall and information bias. Third, we only studied the frequency of eating behaviours; therefore, it would be of interest to explore other aspects regarding the effects of job strain on this construct, such as the amount of food consumed and where, at what time and with whom each eating behaviour occurred, as this information would provide a more comprehensive picture of eating behaviours. Moreover, questions regarding fruit and vegetable consumption, as well as replacing meals with snacks, did not include examples of specific foods. Thus, although it may seem intuitive that fruit consumption means the intake of fresh fruits, we cannot rule out the fact that the interviewees considered other kinds of fruits, such as canned or dried fruits and even squeezed juices. Similarly, several other foods could be considered vegetables (e.g. legumes, potatoes, etc.) other than

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green vegetables. Similarly, snacks could be considered both healthy (e.g. a fresh fruit or a small amount of tree nuts) or unhealthy (e.g. a candy bar). Last, although the present findings were observed regardless of a list of main confounders, including sociodemographic, comorbidities and social support, residual confounding is still possible because of the complexity involved in the decision-making process regarding eating behaviours.

In summary, in schoolteachers, job strain was prospectively related to a lower frequency of fruit consumption after 2 years regardless of the main confounders, including social support. The perception of having high levels of social support does not seem to compensate for the impact of an unbalanced demand–control relationship on concrete eating behaviours such as fruit consumption, although stimulating one's social support is a prominent strategy to ameliorate the harmful effects of job strain on one's health[27]. These findings have occupational and public health nutrition implications. First, similar to the reduced level of fruit consumption over time observed in our findings, adverse job conditions may increase the likelihood of cooccurring health risk behaviours[43]. Thus, reducing work stress by increasing job control and decreasing psychologic demands might help efforts to promote healthy lifestyles among these professionals[44] as part of a strategy to prevent possible harmful effects of job strain on health among teachers. For instance, promising results from the Promoting Activity and Changes in Eating (PACE) study have pointed out that including stress management and/or mindfulness techniques in worksite behaviour-change interventions could improve programme effectiveness[30]. Second, in terms of public health nutrition, the school environment affords an opportunity to promote dietary health to all users, including schoolteachers, other school workers and students. In this context, schoolteachers have a substantial role in proposing and supporting the development of school nutrition policies, such as by encouraging the provision of healthy choices within the school by the governmental authority and food vendors[20]. Therefore, future intervention studies are required to explore alternatives for minimising the negative impacts of work on teachers' lifestyles and to evaluate intervention proposals aimed at promoting healthy eating habits in the school environment, focusing not only on teachers but also on students.

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Supplementary material

To view supplementary material for this article, please visit https://doi.org/10.1017/S1368980021000860

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