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**The impact of fasting on workplace productivity and wellbeing:
a review of fasting in Ramadan**

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The impact of fasting on workplace productivity and wellbeing: a review of fasting in Ramadan

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Abstract: The research aims to explore the impact of fasting on employee productivity during the Holy month of Ramadan. Around the globe, millions of Muslims observe this month by fasting for up to thirty consecutive days. Thus, this research will shed the light on ways to improve workplace conditions to promote optimal results for all stakeholders involved. It also gives researchers insight on the efficacy of different organisational practices and policies. The paper focuses on three main elements – productivity, emotional wellbeing, and employee preferences. A survey was administered to employees from various industries in Kuwait (N = 201) who were working while fasting. The majority reported that their overall wellbeing was not negative while fasting and that they were satisfied with their current organisational policies. Also, even though fasting affected their concentration at work, they did not feel that they conducted more mistakes and also did not feel that reducing the number of working days/hours would improve their productivity. With almost 90% of respondents reporting that they regularly fast during Ramadan, it is important for policymakers worldwide to take these observations into consideration.

Keywords: Ramadan; fasting; cultural diversity; productivity; wellbeing.

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1 Introduction

Fasting has become a universal practice as many religions worldwide embrace it as a principal method of maintaining their health (Hossain, 2012). Furthermore, with a global workforce of about 700 million Muslims, the Holy month of Ramadan has a profound effect on work, personal and spiritual life (Alghafli et al., 2019). During this Holy period, Muslims worldwide will refrain from food and water from sunrise to sunset. Yet, there seems to be a dearth of information of how fasting in general may impact productivity and wellbeing. However, the generic topic of employee productivity has been explored extensively under the umbrella of total quality management (TQM), which is defined as an organisation-wide effort aimed at creating an optimal environment supportive of continuous improvement, including employee productivity and satisfaction (Sin et al., 2021). Within the pillars of TQM, many elements of the employee engagement process are assessed, including employee satisfaction and elements of the workplace equation which impact their productivity. However, the topic has yet to take into consideration a ‘fasting’ employee and how that may impact the different elements involved.

With the expectation that employees will inevitably be feeling the mental and physical effects of fasting, employers are encouraged to learn about their needs in order to make relevant adjustments and policies. Luckily, the Middle East region has reasonable workplace regulations in place pertaining to working hours during the Holy month since Islam is the main religion. For example, working hours are reduced significantly and workplace demands are usually eased. As well, in practice, employees will likely avoid tasks which require high levels of concentration and face-to-face meetings are likely reduced significantly. However, in the broader scheme of things, not all fasting Muslims around the world enjoy such benefits. Moreover, workers worldwide are currently experiencing the effects of the stressful pandemic and policymakers are already scrambling to find affective regulations (Diab-Bahman and Al-Enzi, 2020). Therefore, it is essential to also consider the stress and commotion of the pandemic which may impact workplace regulations particularly regarding Ramadan policies.

1.1 Problem statement

This research is conducted to acknowledge the identified gap in literature and investigate the impact of Ramadan on employee productivity and wellbeing. It aims to increase managers' awareness on dealing with fasting employees and recommends solutions which could increase productivity. The research will also shed light on the different ways that the workplace can be enhanced to support a diverse group of employees and provide optimal conditions for productivity as reported from the primary stakeholders – the employees. Though there is plenty of research on exploring productivity and its numerous implications, there has been little research reported on how group fasting impacts productivity. Thus, this research aims to answer the question on whether fasting for up to 30 days consecutively from sunrise to sunset reduces productivity as one may expect.

2 Literature review

2.1 Workplace implications

With Islam being the world's most dominant religion (Campante and Yanagizawa-Drott, 2015), it is worthwhile for employers to consider supporting their observing staff regardless of the country or time zone. As a result of fasting, there are three main factors which may impact employees' productivity as mentioned below (Yasin et al., 2013):

2.1.1 Physical energy

The physical energy pillars, also known as sleep, nutrition, and fitness, are tested during Ramadan. Many fasting employees are deprived from sleeping well due to late night spiritual rituals. In addition, some may experience fatigue due to a bad nutrition diet either by over-eating or under-eating. As well, overall fitness levels may also decrease due to lack of exercising during and after fasting. Hence, repeating all three for 30 days straight might influence any person's energy level, which in turn will impact their productivity level.

2.1.2 Focus level

When employees' physical strength is low, it is challenging to be extremely focused on activities that require a certain level of energy and attention. For instance, when a person is hungry and dehydrated, they will not be able to function at their best; hence influencing their concentration as well as their overall productivity.

2.1.3 Time management

The 'normal' routine of a fasting employee is completely different during Ramadan than normal days. Fasting employees do not only stay up late to ensure a meal before sunrise, but also commend to some spiritual commitments. Thus, they face challenges in managing their time and trying to balance between their work and spiritual commitments.

On the contrary, there are health benefits associated with fasting in general. According to Pakkir Maideen et al. (2017, p.167), "practicing Islamic intermitted fasting

enjoy various health benefits, including weight loss, reduced insulin resistance, blood glucose, and blood pressure, improved lipid profile, prevention of obesity, diabetes, cardiovascular diseases, and cancer, protection against neurodegeneration, and diminished inflammation.” It also helps in breaking down body fat because during fasting the central source of energy is fat (Sadeghirad et al., 2014). As well, it promotes cognitive performance and could assist in avoiding neuro-degenerative disorders by protecting brain cells and reducing depression and anxiety, in addition to the possibility of developing dementia (Pakkir Maideen et al., 2017).

2.2 Total quality management

According to Sundar and Prabhu (2019), quality has become an important competitive priority which has resulted in firms attempting to benchmark their quality practices. In another investigation which revolved around best-practice, it was concluded that quality culture creates a chain effect that greatly improves performance of a company (Najmi et al., 2021). Another recent study found that workforce commitment and people management are directly related to business performance (Singh et al., 2019). Moreover, in a study conducted about TQM in the workplace, it was identified that one of the biggest factors which influences success in the workplace is how the human resources (employees) are treated (Pattanayak and Punyatoya, 2015). Also, in another recent study, it was found that the actions of managers and leaders is a key driver in implementing quality systems in the workplace (Babu and Thomas, 2020). Moreover, Sin et al. (2021) also showed that business ethics play the significant role of mediator in the relationships of TQM and sustainable performance. As well, Wartini et al. (2021) investigated the effect of quality management practices (QMPs), including employee satisfaction, on organisational performance and concluded that the basic model of leadership behaviour towards their employees had a profound effect. Therefore, it can be concluded that, from the available recent research on elements of the workplace which impact productivity through the lens of TQM, leadership attitudes and workplace policies are an important measure towards optimal conditions in the workplace.

2.3 Ramadan in Kuwait

As Islam is the official state religion in Kuwait, the highlights of Ramadan can be summed up based on an individuals' enthusiasm in visiting their nearby mosques, reciting the Qur'an, which is Islam's holy book, and sleeping late at night. Ramadan has consistently been related with a specific type of persona and meditation. The specific date of the month is usually defined by religious specialists when they notice certain sightings identified with the appearance and pattern of the moon. Ramadan is perceived by all of Kuwait's citizens and residents, regardless of their ethnicity. Inability to maintain Islamic traditions, particularly in public places during fasting hours, may land a person with a fine for their practices or even jail, as endorsed by the government (Kuwait Labor Law, 2010). There are two main legal issues associated with Ramadan in Kuwait:

- 1 Eating in public is not allowed for citizen and residents, irrespective of their nationality to respect fasting individuals.

- 2 Working hours decrease in Ramadan by two hours according to article 64 of Kuwait Labour Law that states, “it is forbidden to allow workers to work for more than 48 hours per week or 8 hours a day, except in such events as are specified in this law. Working hours during the month of Ramadan shall be equal to 36 hours per week.”

2.4 Ramadan practices

Islamic principles govern the guidelines of fasting which makes Ramadan’s core practices common for all Muslims around the world. Therefore, many Muslims consider Ramadan as the most sacred time of the year to enrich spirituality as mentioned by Ziaee et al. (2006). Furthermore, this month follows the Islamic lunar calendar and shifts by around 11 days on the Gregorian calendar each year, so it could come at any season of the year (Alghafli et al., 2019). During Ramadan, the time for fasting takes place from dawn to sunset representing the daylight hours where Muslims are allowed to break fasting by having meals after sunset until pre-dawn. However, Muslims across the globe do not face the same challenges when fasting since some of them could be fasting longer hours due to longer daylight time while some others could be fasting within an area with higher temperature. Beyond physical fasting from food, Ramadan imposes moral-based behaviours such as controlling anger, improving religious practices like praying and reading Quran.

2.5 Spiritual impact

The religious behaviour of an individual has an impact on the quality of decision making embraced by judgement errors driven by the motive of being generous and kind with others as argued by Demiroglu et al. (2017). Moreover, within the same study, another reason which may cause judgement errors is related to the physiological effects of fasting such as reduced motivation to work as mentioned by Afifi (1997). Other researchers such as Barro and McCleary (2003) found a negative relation between religious behaviour and economic growth due to several factors including reduced working hours and reduced productivity during working hours in Muslim countries. On the same argument, Campante and Yanagizawa-Drott (2013) found that Muslims during Ramadan care more about religion and less about work where they choose to work less for the benefit of religious engagement. That said, there exists an abundance of literature on the impact of Ramadan fasting on different aspects of wellbeing, however its impact on organisational productivity is still at its fruition stage.

2.6 Workplace productivity and Ramadan

Workplace productivity is impacted by the happiness of employees as discussed by Saenghiran (2013). Moreover, according to Breitenacker and Shah (2018), work-life balance is a source to employee happiness coupled with the argument of Koubova and Buchko (2013) supporting this concept by discussing that employees who deal with less stress at work and at home experience satisfaction towards their work which will impact positively the wellbeing of themselves and for the organisation as well (Wartini et al., 2021). In addition, Emslie and Hunt (2009) mentioned in their study that the increase in the level of work stress can trigger negative behaviour of employees where an employee who is working long hours and having to work extra hours at home leads to an imbalance

between work and family, thus negatively impacting employee job performance and productivity.

Moreover, when it comes to workplace productivity during Ramadan, Hu and Wang (2019) studied the effects of nutrition deficiency on labour productivity in Indonesia and found that Muslims, when fasting, experience energy deficiency and decrease in productivity – especially during the two hours before sunset. Additional findings related to work productivity during Ramadan were reported by Bertoli et al. (2020) and in line with the views of Toda and Morimoto (2004) explaining that prolonged fasting while working leads to physical distress and exposes the fasting employee to the risk of being involved in work accident. As well, the stress of the recent pandemic has potentially exaggerated conventional stress amongst adults in various fields particularly in online education (Diab-Bahman et al., 2021). Moreover, in Ovayolu et al.'s (2016) work, it was found that fatigue is impacted and increased during the fasting month. For example, the lack of a proper food schedule coupled with lack of hydration is known to mentally impair human judgment. In fact, Demiroglu et al. (2017) found that, within the banking sector, errors committed by individual loan officers were consistent with Ramadan-induced judgment errors. Generally, common findings include increased irritability and incidences of headaches with sleep deprivation and lassitude prevalent (Leiper and Molla, 2003). Therefore, it could be suggested that working hours can be adjusted to better suit the workday when Ramadan is in session.

2.7 Diversity in the workplace

On a social level, Ramadan is usually a time where everything tends to slow down socially and professionally. With low energies resulting from the lack of proper nutrients, the brain generally feels fogged, and the body usually reacts slower than normal. This is then reflected in the workplace where employees are expected to perform regardless of how they feel, even though employee's wellbeing is known to impact performance. To maintain work-life balance and employee happiness at work, Helmle et al. (2014) found that employees with flexible schedules, along with supportive supervisors, have less stress and greater job satisfaction. Further, another measure which may enhance employee productivity at workplace was covered by Edmunds and Pryce-Jones (2008), emphasising the importance of valuing employees and treating them well to create happiness at work. Overall, Islamic ethics, which are usually highly practiced during Ramadan by fasting Muslims, proved to have a positive and significant effect on work outcome through job satisfaction and commitment (Rokhman, 2010). Hence, by having workplace spirituality programs, according to Krishnakumar and Neck (2002), principled and committed employees will create positive outcomes for their organisations. In fact, research supports such notion as it was found that doing so may prove to be advantageous to the given company (Sundar and Prabhu, 2019). In one recent research on working hours in Ramadan conducted by Bertoli et al. (2020), it was found that policies supporting religious diversity and reconciling religious practices with the working schedule may decrease health costs related to occupational injuries, thus benefiting the company.

2.8 *Psychological wellbeing*

Besides expectations that employees may be lethargic and even irritable during Islam's holiest month, worshipers are encouraged to spend their time, particularly at night, dedicated to prayer and gratitude. Whilst this may be an easier task once people have broken their fast and had something to eat, the after-sunset hours are usually a time of family gathering and religious worship. Therefore, sleeping schedules are often interrupted, especially in countries where the sun sets relatively late during the day and observers eat at a late hour. In general, sleep deprivation is often a cause for poor wellbeing and performance. In a study done by Rosekind et al. (2010), it was found that, compared with at-risk and good-sleep groups, insomnia and insufficient sleep syndrome groups had significantly worse productivity, performance, and safety outcomes. The researchers also reported that sleep disturbances contribute to decreased employee productivity at a high cost to employers. Thus, sleep deprivation is proven to have a direct impact on the workplace and could very well be exasperated with a lack of food and hydration. In fact, another study found that sleep deprivation was predominantly attributed to the inversion of drinking and meal schedule, rather than to an altered energy intake (Roky et al., 2001).

As well, the impact of hunger and fatigue is surely to have an overall affect on the wellbeing of individuals, one which is likely to be positively correlated with the number of fasting days. Also, the Middle East region is known to have one of the highest rates of smokers amongst their population (Sibai et al., 2016), which can also be a stressful situation for those with nicotine addictions and can often lead to unfavourable behaviour during fasting hours. This can also be compounded by the social norms of the different ethnicities (Diab-Bahman, 2021a). The lack of caffeine, another workplace staple particularly in the Middle East, is likely to cause an emotional strain on employees while they are working while fasting. Moreover, as the timing of Ramadan is based on the solar calendar and changes ever year, fasting is particularly difficult during summer months especially in hot desert terrains like Kuwait. The lack of water is surely bound to take its toll even on the most experienced faster. Dehydration is a main cause of lethargy, irritation, dizziness, and lack of concentration (Ramadan et al., 1999).

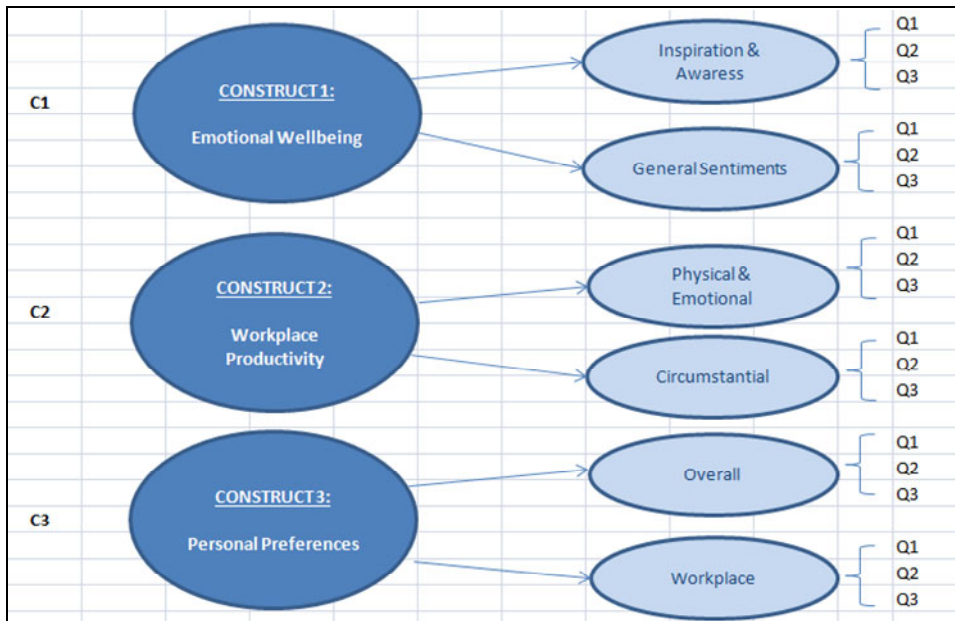
3 **Methodology and outcomes**

3.1 *Expected outcomes*

As discussed in the literature review, most fasting employees are expected to be affected negatively by the lack of food and water. This could possibly impede thinking and concentration and an overall drop in productivity. As well, due to the nightly rituals of the holly month, it is expected that most would lack sleep, which also impacts overall productivity, and prefer to work shorter hours with less expectations and prefer evening shifts. In order to investigate the subject of employee productivity and Ramadan, it is essential to note that there is more than one element involved. After reviewing the available literature, two main themes emerge which have been previously studied and linked to fasting employees' ability to function in the workplace – their physical and mental abilities. These include the employees' ability to be productive throughout the day, as well as their overall emotional wellbeing which is often impacted due to the

fasting conditions. Lastly, in order to satisfy the objectives of this research and dispel some truths about employee preferences while fasting, a third construct was added which pertains to conventional working conditions in the workplace and what the employees perceptions and preferences were regarding them. Thus, a questionnaire was constructed using the three main construct including emotional wellbeing – EW (C1), workplace productivity – WP (C2), and employee preferences – EP (C3) which were predominately derived from the literature review above. Each of the three constructs included a total six questions, each with a three-scale closed ended answer of either ‘yes, neutral, and no’ options. When it comes to EW, the questions were based on two major elements – inspiration and awareness of doing their job and general sentiments of the employees on how well they handled different mental aspects of their duties while fasting. For the second construct WP, questions asked revolved around how likely employees are to finish assigned tasks and if their emotional wellbeing impacted their physical abilities, as well as questions which reveal the overall perception of circumstantial differences between regular working days and Ramadan days. Lastly, questions about personal preferences were asked about generic workplace conditions and precisely at the institute where one works, so as to get an overall impression of what employees deemed to be satisfactory working conditions and what they hoped could be reviewed. Moreover, each of the three elements was further split into two main categories and each question is categorised accordingly as shown in Figure 1.

Figure 1 Questionnaire constructs (see online version for colours)



The questionnaire was then sent and self-administered online as a survey to employees in Kuwait working throughout the holy month of Ramadan while fasting as shown in Table 1.

3.2 Data gathering

Purposeful sampling was used primarily due to the data required to conduct the research and serve the purpose of data collection which was conducted using a structured method of gathering information over the span of one week. Purposeful sampling is a non-probability sampling technique which focuses on the selection of participants possessing predefined characteristics associated with the research study (Etikan et al., 2016). This technique was mainly used since participants needed to be currently working during Ramadan at full capacity. Given the current pandemic and the local restrictions, only a few industries qualified (which were included in the questionnaire). Once exposed, the COVID-19 pandemic created unprecedented pressure on all sectors causing many temporarily closures (Diab-Bahman, 2021b).

3.3 Sampling

This study employs a primary quantitative approach as it is descriptive in nature. The data-oriented approach used is best described as a causal-comparative in that it aims to find an impact of an element on a group, or a factor for comparison. Also called the quasi-experimental research, this quantitative research method is used by researchers to conclude cause-effect equation between two or more variables, where one variable is dependent on another independent variable. The first four questions were for profiling purposes while the three constructs combined had 18 questions for a total number of 22 questions as in Figure 1, each consisting of three-forced answer multiple choice questions. The survey was designed in two languages, English and Arabic, to increase the number of participants and to reduce language barriers as most locals speak English as a second language.

Tracking the respondents and non-respondents proved essential to provide a fair representation. Also, a snowball technique was used in that we asked our contacts to forward the survey to their colleagues and family members who qualify to take the survey. A total of 216 surveys were collected out of a targeted sample of 200 primarily due to the snowball sampling technique, which encouraged individuals to forward the e-survey to their colleagues who fit the criteria. However, further data cleaning was done, and it was found that only 202 of these surveys were complete. The remaining 14 were filtered out as they had missing values as advised by Roy et al. (2016). Table 1 is a breakdown of the total respondents by sector.

Table 1 Distribution by sector

		<i>Frequency</i>	<i>Percent</i>	<i>Valid percent</i>	<i>Cumulative percent</i>
Valid	Banking and finance	22	10.9	10.9	10.9
	Education and training	91	45.0	45.3	56.2
	Health services	31	15.3	15.4	71.6
	Oil and gas	41	20.3	20.4	92.0
	Retail/FMCG	16	7.9	8.0	100.0
	Total	201	99.5	100.0	
Missing	System	1	0.5		
Total		202	100.0		

4 Findings

This section presents the key findings that emerged from the analysis of the data collected following the methodology outlined in the previous section. For the analysis of the data, IBM SPSS Statistics v27 was used for both the descriptive statistics and inferential analysis. For the descriptive statistics, the measures of central tendency and dispersion were computed, and with respect to the measures of central tendency, the mean was computed for the continuous variables, while the mode was computed for the categorical variables, while for the measures of dispersion, the standard deviation was computed in line with Howitt and Cramer (2017). Further, regarding the inferential analyses, the correlation analysis was carried out. The section is organised into five sections. Section 1 is his introduction, while Section 2 presents the response rate. Section 3 presents the results for the distribution of the participants by demographic attributes and Section 4 presents the descriptive summaries for the research variables and Section 5 presents the inferential analyses.

4.1 Demographic analysis

Demographic attributes are important as they are explanatory variables that might help in explaining the distribution of the responses. According to Agresti (2018), the distribution of responses by demographic profiles also assists with the determination of the representativeness of the sample size as well as the credibility of the responses. For this study, there were only four demographic variables used and these were sector, gender, age, position, and they are summarised in the subsections below.

4.2 Sector analysis

Table 1 presents the distribution of the respondents by their sector. From the outcome, most of the respondents were from the education and training sector (45.3%), followed by the oil and gas sector (20.3%), while those from the health services were 15.3%, and the second least being from the banking and finance sector (10.9%). The least proportion were from the retail/FMCG sector (8.0%).

4.3 Distribution by gender

According to the findings, the proportion of females (64.85%) was higher than the proportion of males (35.15%), and this showed a clear gender disparity. However, for this study, it was assumed that the gender disparity between the participants was inconsequential.

4.4 Distribution by age

The distribution of the respondents by their age is presented in Table 2.

From the outcome, most of the respondents were aged more than 30 years (81.2%) while those aged below 30 years were 18.8%. This shows that there were fewer younger respondents than the middle-aged to old age among the respondents and this generally reflects the same distribution as the population, which tends to confirm that the sample

used was reflective of the population, which confirms the representativeness of the sample.

Table 2 Distribution of age of respondents

		<i>Frequency</i>	<i>Percent</i>	<i>Valid percent</i>	<i>Cumulative percent</i>
Valid	Less than 30 years	38	18.8	18.8	18.8
	More than 30 years	164	81.2	81.2	100.0
Total		202	100.0	100.0	

4.5 *Distribution by position*

From the outcome, most of the respondents were employees, and these comprised of 70.79%, while the managers were 18.81%, and the least proportion were the senior managers who were 10.40%. From this outcome, it can be argued that the distribution was reflective of the actual situation where the proportion of the ordinary employees is expected to be the highest followed by the middle managers and the senior managers being the least. Again, this research outcome clearly shows that the sample used for this study was representative of the population.

4.6 *Descriptive statistics*

Several questions were asked, and the summaries are presented in Table 3, and being categorical variables, the mode (most frequent) was reported.

The results show that most of the respondents were not irritable (60.5%), that the majority were well rested (52.9%), that they would not feel offended if asked to satisfy challenging requests of non-fasting senior colleagues (58.0%), and that they felt that the organisation was looking after their wellbeing during Ramadan (47.1%). It also emerged that the majority were satisfied with their organisational policies during Ramadan (58.0%), that they were not concerned about managers penalising or criticising them for underperformance during fasting (63.9%). Further, most of the respondents did not feel that they had more work responsibilities (51.3%), and they were neutral on whether they feel they are more productive (40.3%). The majority felt that fasting affects their concentration at work (44.5%), however, the majority did not think that reducing the number of working days would improve their productivity during Ramadan (47.9%). Additionally, the majority did not feel they conduct more errors/mistakes at work during fasting hours (54.6%). On whether office meetings should be reduced during Ramadan to maintain a good productivity, the majority agreed (67.2%). Regarding the remaining questions, the respondents agreed that having a 30 min break in Ramadan working hours can increase productivity (60.5%), that they prefer to have the option of working remotely (69.7%), that they feel work demands/expectations should be decreased in Ramadan (53.8%), that both genders have the same number of responsibilities during Ramadan (47.9%) and that they regularly fast during Ramadan (87.4%). The respondents were also asked to provide their perspective regarding the ideal hours for working during Ramadan and the results are presented in Table 4.

Table 3 Perceptions descriptive statistics – frequencies

	<i>No</i>	<i>Neutral</i>	<i>Yes</i>
Do you find yourself more irritable	72 (60.5)	27 (22.7)	20 (16.8)
Do you feel you are well-rested	27 (22.7)	29 (24.4)	63 (52.9)
Would you feel offended if asked to satisfy challenging requests of non-fasting senior colleagues	69 (58.0)	26 (21.8)	24 (20.2)
Do you feel that your organisation is looking after your wellbeing during Ramadan	25 (21.0)	38 (31.9)	56 (47.1)
Are you satisfied with your organisational policies during Ramadan	12 (10.1)	38 (31.9)	69 (58.0)
Are you concerned about managers penalising or criticising you for any underperformance during fasting	76 (63.9)	18 (15.1)	25 (21.0)
Do you feel that you have more work responsibilities	61 (51.3)	26 (21.8)	32 (26.9)
Do you feel you are more productive	48 (40.3)	47 (39.5)	24 (20.2)
Do you think fasting affects your concentration at work	38 (31.9)	28 (23.5)	53 (44.5)
Do you think that reducing the number of working days will improve your productivity during Ramadan	41 (34.5)	21 (17.6)	57 (47.9)
Do you feel you conduct more errors/mistakes at work during fasting hours	65 (54.6)	28 (23.5)	26 (21.8)
Do you think office meetings should be reduced during Ramadan to maintain a good productivity	14 (11.8)	25 (21.0)	80 (67.2)
Do you think having a 30 min break in Ramadan working hours can increase your productivity	17 (14.3)	30 (25.2)	72 (60.5)
Would you prefer to have the option of working remotely	14 (11.8)	22 (18.5)	83 (69.7)
Do you feel that work demands/expectations should be decreased in Ramadan	34 (28.6)	21 (17.6)	64 (53.8)
Do you feel both genders have the same number of responsibilities during Ramadan	45 (37.8)	17 (14.3)	57 (47.9)
Do you regularly fast during Ramadan	8 (6.7)	7 (5.9)	104 (87.4)

Table 4 Perceptions on timing – frequencies

	<i>Morning</i>	<i>Afternoon</i>	<i>Evening</i>
What would be the ideal hours to work during Ramadan	57 (47.9)	50 (42.0)	12 (10.1)
What are the best hours to attend important office meetings	48 (40.3)	53 (44.5)	18 (15.1)
During which hours do you feel you can concentrate most	56 (47.1)	45 (37.8)	18 (15.1)

On the ideal hours to work during Ramadan, the majority indicated morning (47.9%), while the second highest proportion was for those who said afternoon (42.0%). On the best hours to attend important office meetings, the majority said afternoon (44.5%) followed by those who mentioned morning (40.3%). Lastly, regarding the hours when one feels they can concentrate more, the majority mentioned mornings (47.1%), followed by those who mentioned afternoons (37.8%). Thus, from the foregoing, evening ratings were the least favourable among the three answers.

4.7 Inferential tests – correlation analysis

This study sought to test whether there was a correlation between work responsibilities and productivity, as well as between work responsibilities and the need to decrease work expectations in Ramadan. Since the variables were categorical, the Spearman's rho correlation analysis was carried out and the results are presented in Table 5.

Table 5 Correlation test

		<i>Do you feel that you have more work responsibilities</i>	<i>Do you feel you are more productive</i>	<i>Do you feel that work demands/expectations should be decreased in Ramadan</i>
Do you feel that you have more work responsibilities	Correlation coefficient	1.000	-0.390**	0.270**
	Sig. (two-tailed)	.	0.000	0.000
	N	200	199	200
Do you feel you are more productive	Correlation coefficient	-0.390**	1.000	-0.402**
	Sig. (two-tailed)	0.000	.	0.000
	N	199	199	199
Do you feel that work demands/expectations should be decreased in Ramadan	Correlation coefficient	0.270**	-0.402**	1.000
	Sig. (two-tailed)	0.000	0.000	.
	N	200	199	200

Note: **correlation is significant at the 0.01 level (two-tailed).

On the correlation between work responsibilities and productivity, the relationship was negative and statistically significant: $r(200) = -0.390$, $p < 0.05$. On the correlation between work responsibilities and whether work demands/expectations should be decreased in Ramadan, the relationship was negative and statistically significant: $r(200) = -0.402$, $p < 0.05$. Lastly, on the correlation between work responsibilities and whether work demands/expectations should be decreased in Ramadan, there was a statistically significant positive correlation: $r(200) = 0.270$, $p < 0.05$. Therefore, from the analysis, it can be argued that having more work responsibilities reduced the productivity during Ramadan. Secondly, those that felt less productive during Ramadan tended to feel that work demands/expectations should be decreased in Ramadan. Lastly, those with more work responsibilities tended to feel that work demands/expectations should be decreased in Ramadan.

5 Discussion and conclusions

Although the majority felt that fasting affects their concentration at work, the majority did not report any decrease in productivity nor did the majority feel that majority did not feel they conduct more errors/mistakes at work during fasting hours. This could be

explained with the decrease in working hours in the country as imposed by the local ministry, which could mean that they are efficient and well-accepted by most. Moreover, the impact of sleepless nights due to expected holly rituals during the month were expected to push employees towards asking for more breaks/less expectations, and fewer meetings which is what the findings confirmed. However, the lack of sleep was also expected to find a preference amongst employees for evening shifts, but the responses proved otherwise. In fact, most people prefer the morning shifts which could be explained by the conventional knowledge that our brains function best in the morning. Also, perhaps most people would prefer to dedicate their evenings to family/religious obligations and breaking the fast, which is bound to impact bodily functions when one is fasting all day.

In general, the results of this research show that the overall sentiments and wellbeing in of employees surveyed were not negative as the majority reported. As well, the majority reported being satisfied with their current organisational policies during the Ramadan period, and that even though fasting affected their concentration at work, they did not feel that they conducted more mistakes at work. Additionally, the majority did not feel that reducing the number of working days/hours would improve their productivity, that they prefer to have the option of working remotely work demands/expectations should be decreased in Ramadan with almost 90% of respondents reporting that they regularly fast during Ramadan, it is important to take these observations into consideration. On the ideal hours to work during Ramadan, the majority indicated that they preferred to work during the morning hour which goes in hand with the finding that the majority feels they can concentrate more in the morning. It was also concluded that evenings were the least favourable timing for working hours.

On the correlation between work responsibilities and productivity, the relationship was negative on the correlation between work responsibilities and whether work demands/expectations should be decreased in Ramadan, the relationship was also negative. Lastly, on the correlation between work responsibilities and whether work demands/expectations should be decreased in Ramadan, there was a statistically significant positive correlation indicating that having more work responsibilities reduced the productivity during Ramadan.

6 Social and scientific implications

Social implication of this research includes improving policy makers' and managers' familiarity with the concept of fasting exercised by Muslim communities and its impact on their productivity and wellbeing. As most research on the topic of productivity usually revolves around static numbers and correlations, the insight from a first-person perspective is seldom reported. Therefore, the findings are impactful in that they investigate the subject from a unique point of view. The findings could also be of particular importance in places where minorities exist, in order to reduce prejudice and inequality. The research proves that having appropriate expectations and practices during the Holy month can impact the overall wellbeing of employees, which in turn can impact the notion of social contracts and employee satisfaction – both of which are important elements of quality management. As for scientific implications, global management practices which are concerned with enhancing employees' productivity and wellbeing in

the workplace, such as TQM, could rely on the findings of academic research to enhance their internal policies. Thus, the research findings could contribute to the movement of developing global best-practice within the context of managing and dealing with a diverse group of fasting employees.

7 Limitations

Since there are many observers of the Holy month of Ramadan around the world, it is worthwhile to continuously monitor the conditions and policies in which employees work. There are many advantages in doing so, particularly productivity and overall wellbeing of the employees. This research was limited to a relatively small cluster, and was conducted in a small country where the labour laws are already enforced to reduce the working hours in Ramadan. Therefore, it is suggested that other countries around the world conduct such research and compare their findings, particularly in foreign countries where there are significant clusters of Muslims. As well, it is advised that similar research is conducted over several years and in larger numbers to have more accurate results. Finally, it would be interesting to also include the workplace regulations into such research as that can reveal much insight. There are surely different workplace policies throughout the world which research can help shed the light upon as even Muslim-dominant countries do not have any standardised or uniform procedures in place for issues such as working number of hours during Ramadan.

8 Future research

With the Muslim religion being one of the most dominant in the world, policy makers and researchers could surely benefit from expanding this research and taking it to the next level. Such an investigation can take this very research and add employee demographics to the mix, such as age and gender, to see if there are any differences in opinions between them. As well, other factors of the workplace setting can be taken into consideration like conventional number of hours, work title and/or authority, salary, etc. Social practices could also be considered, as well as local community/country norms which may have an impact on the overall data collected and analysed. As well, since fasting in the context of this research reflects religious practice, perhaps the element of religiosity could be measured, and a further analysis could be applied to see if there are any correlations between the productivity and religiosity. Finally, researchers could also conduct an experiment where a control group can be compared during Ramadan to one with a normal setting. The control group could identify whether implementing the suggested changes as found from this research can be impactful.

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