

# Family cohesion and family size moderating burnout and recovery connection

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<b>Background:</b>	It has been argued that family issues in individual cultures do not correlate with fulfilment. However, the universality of these findings is unknown as they are based on data from the Western world.
<b>Aims:</b>	To examine the connection between job burnout and recovery and the moderating effects of perceived family cohesion and family size in this relationship.
<b>Methods:</b>	Moderated hierarchical regression analyses were carried out on a sample of medical practitioners working in intensive care units from federal and state-owned hospitals in Southeastern Nigeria.
<b>Results:</b>	There were 183 participants. Job burnout was negatively related to recovery and perceived family cohesion was positively related to recovery. However, contrary to our assumption, family size was positively related to recovery. Perceived family cohesion was vital in recovery regardless of the doctors' experience of high levels of burnout. In contrast to most previous findings, family size was found to have a moderating effect in the burnout-recovery connection.
<b>Conclusions:</b>	The findings of this study suggested that family bond is important in collectivistic cultures. This was underscored by the moderating effects family issues had on the relation between burnout and recovery. These findings are different from those in Western societies in which previous studies have been conducted.
<b>Key words</b>	Family size; intensive care unit; job burnout; recovery.

## Introduction

Prolonged stress has been established as a precursor of burnout and can be defined as a state of exhaustion in which one is cynical about the value of one's occupation and doubtful of one's capacity to perform. Burnout is reported to be common among medical doctors at all stages of their training and practice, and in every speciality [1]. For doctors to fulfil expectations, the need for recovery becomes extremely important. Sonnentag and Fritz maintained that sufficient recovery would only be possible when these employees mentally switch off from all work-related activities outside work hours [2]. Recovery can be described as the subjective experience of craving relief from normal demands and taking some time out that allows for zero or minimal activity.

Most recent studies on recovery have been based on Western data. Therefore there may be other factors that

may help Nigerian workers develop recovery systems to reduce suffering from burnout. Regardless of being identified as important protective factors against negative outcomes, perceived family cohesion and family size have not been studied [3]. However, the role of family dynamism on recovery has been found to be different in Western and African societies [4]. While most African cultures stress the importance of family and children, it is reported in Western societies that children represent financial liabilities and are not necessarily considered to guarantee fulfilment [5].

Two theories regarding recovery are the Conservation of Resources (COR) theory [6] and the Effort-Recovery Model (E-RM) [7]. The COR theory assumes that stress occurs when individuals perceive threats of resource loss or actual loss and individuals seek to preserve and build resources because the inability to replenish energy resources may lead to burnout. The E-RM holds that

effort expenditure at work leads to load reactions such as fatigue unless the individual recovers and the body returns to its pre-stressor state. This implies that family cohesion and family size could influence recovery. Marital status and financial obligation to the family could also affect this relationship.

Research shows that four recovery strategies (psychological detachment from work, relaxation, mastery and control) are related to job exhaustion. Poor recovery has been related to job burnout [8]. Insufficient recovery from work stress has been shown to be a critical factor in burnout [9]. Exhaustion has been shown as correlating negatively with self-rated health and work ability among Finnish teachers [10].

Family cohesion reflects the emotional bond that family members have with other members of the family. A relationship between higher cohesion, well-being and life satisfaction has been demonstrated in literature [11]. In contrast, Kager *et al.* showed lower familial cohesion to be related to more problems in social functioning, a lower quality of life and lower subjective well-being [12]. The most important elements of the concept of high cohesion include warmth, nurturance, time together, physical intimacy and consistency [13], all of which provide emotional security to individual members of the family.

Recently, studies on the importance of family in creating an atmosphere of relief have emerged in Nigeria. One of these studies found that number of children was the strongest predictor of marital satisfaction, as compared with wealth and education [4]. Meta-analytic studies in Western societies have found conflicting results of a negative correlation between children within a family and the parents' marital satisfaction [14]. Dillion and Beechler found a small negative correlation between the number of children and marital satisfaction [15].

The aim of this study, therefore, was to explore the relation between burnout and recovery among intensive care unit (ICU) doctors in the Igbo culture area of Southeastern Nigeria and to examine whether perceived

family cohesion and family size could moderate this relationship.

## Methods

We generated a number of hypotheses we wished to test in this study (see Figure 1).

Data for the study were collected from three survey sources involving Igbo ICU doctors. The Igbo are a culturally homogenous group as that relates to family forms, norms and expectations. Doctors from other cultural groups were excluded from the study in order to avoid raising untoward validity issues. Fifteen federal and state-owned hospitals studied had more than one ICU covering medical/surgical specialities, accident/emergency (A&E) and paediatrics. The researchers and three trained research assistants handed the questionnaires directly to the doctors during working hours in their respective offices. After 2 days, we returned to collect the completed questionnaires as agreed. An *a priori* sample size calculation was not carried out in the study. However, all the ICU doctors in the hospitals studied were approached to participate. We addressed missing data through the follow-up approach using the entire instrument on the non-responders to determine if any differences existed between the responders and non-responders.

The Family Cohesion scale is a nine-item scale developed by Moos and Moos in 2009 to measure the degree of commitment, help and support that family members provide for one another [16]. Respondents rated the items as 0 = mostly true or 1 = mostly false (about their family). Items 2, 5 and 7 are directly coded, whereas items 1, 3, 4, 6, 8 and 9 are inversely coded, and responses are summed to create a total score. A higher score indicates a more cohesive family environment.

Burnout was measured with a single item that had the highest factor loading on the emotional exhaustion (EE) ('I feel burned out from my work') and depersonalization (DP) ('I have become more callous toward people since I took this job'), as suggested by West *et al.* [17]. West

- Hypothesis 1 (H1): Job burnout is negatively related to recovery among ICU doctors.  
 Hypothesis 2 (H2): Perceived family cohesion is positively related to recovery among burned-out ICU doctors.  
 Hypothesis 3 (H3): Perceived family cohesion moderates the negative relationship between burnout and recovery, in such a way that the relationship is weaker when perceived family cohesion is high than when it is low.  
 Hypothesis 4 (H4): Family size is negatively related to recovery among burned-out ICU doctors.  
 Hypothesis 5 (H5): Family size does not moderate the negative relationship between burnout and recovery among ICUs doctors.

**Figure 1.** Hypotheses tested.

*et al.* stated that single item measure of emotional exhaustion and depersonalization provides meaningful information on burnout in medical professionals. Some other researchers have adopted a similar measure of burnout in their separate studies [18]. Items were responded to in terms of the frequency with which the respondent experienced these feelings on a seven-point, fully anchored scale (0 = never, 1 = a few times a year, 2 = once a month or less, 3 = a few times a month, 4 = once a week, 5 = a few times a week, and 6 = every day). Higher scores indicated a high experience of burnout.

The Recovery Experience Questionnaire developed by Sonnentag and Fritz in 2007 was used to assess recovery experience of ICU doctors [2]. It is a 16-item, 4D scale that measures detachment ( $\alpha = 0.82$ ), relaxation ( $\alpha = 0.88$ ), mastery ( $\alpha = 0.85$ ) and control over leisure time ( $\alpha = 0.92$ ). Items are rated on a Likert scale, ranging from 1 (totally disagree) to 5 (totally agree). The overall total score of all four dimensions of the scale indicates the individual's recovery.

*Family size* was measured by asking the participants to indicate the number of family members living with them in the same house.

Gender, financial obligation, marital status, age and job tenure were considered as confounding variables because earlier studies related them to burnout and recovery. This was to reduce the possibility that variables not measured could account for aspects of the results.

This study received approval from the medical ethical committee of each hospital.

Moderated hierarchical regression analysis was employed to examine the main effects of the antecedent variables, as well as their interaction effects on recovery [19]. The criterion for a term being significant in the hierarchical regression analysis was  $P < 0.05$ . For each hierarchical regression performed, predictor variables were entered within six successive steps. In step 1, demographic variables were entered as control. In steps 2, 3 and 4,

standardized index of burnout, family cohesion and family size were entered, respectively. The interactions of burnout  $\times$  family cohesion and burnout  $\times$  family size were entered in steps 5 and 6, respectively. In the situations where the interaction was significant, the simple slope procedure was adopted in order to further examine the pattern of the interaction [20]. The risk of multicollinearity between the predictor variables was controlled by standardizing all the indices [21]. Result of the analyses indicated that we did not encounter multicollinearity in any of the regression models that were carried out. For each independent variable, the tolerance index ( $1/\text{VIF}$  – variance inflation factor) never exceeded the score of 0.82 (cut-off  $< 0.20$ ) [22].

## Results

Out of the 241 copies of the questionnaire distributed, 203 were returned, representing an 84% response rate. Twenty copies were discarded due to improper completion. Specifically, some respondents provided their demographic information only and did not respond to any of the items in all the scales, whereas others ignored one or two other scales, bringing the number of valid copies that were used for analyses to 183. The follow-up approach was employed and after verbal appeal 13 (65%) of the non-responders completed our questionnaires. Using the entire instruments with the demographics, the *t*-test analysis indicated no differences between responders and non-responders. The participants consisted of 125 (68%) male doctors. Their ages ranged from 38 to 52 years, with a mean age ( $M = 44.7$ ;  $SD = 4.2$ ).

The results of descriptive statistics in Table 1 show that among the five control variables tested, gender, age and job tenure were not significantly related to recovery experience, whereas financial obligation ( $\beta = 0.35$ ,  $P < 0.001$ ) and marital status ( $\beta = -0.24$ ,  $P < 0.01$ ) were significantly related to recovery. Job burnout was negatively

**Table 1.** Means, standard deviation (SD) and intercorrelations among study variables

S/n	Variables	Mean	SD	1	2	3	4	5	6	7	8	9
1	Recovery	32.48	8.39	(0.86)								
2	Gender	1.32	0.47	-0.03	–							
3	Age	44.70	4.17	0.09	0.10	–						
4	FO	1.30	0.46	0.35***	-0.19**	-0.06	–					
5	Job tenure	6.09	1.98	-0.02	0.04	0.62***	0.15*	–				
6	Marital status	1.24	0.43	-0.24**	-0.05	-0.12*	-0.05	-0.10	–			
7	Job burnout	5.52	1.92	-0.54***	-0.12*	0.05	-0.16*	0.15*	0.05	(0.72)		
8	PFC	6.08	1.97	0.22**	-0.00	0.21**	0.07	0.16*	-0.11	-0.02	(0.83)	
9	Family size	3.28	1.31	0.53***	0.07	0.05	0.23**	0.07	-0.53***	-0.38***	-0.03	–

FO, financial obligation; PFC, perceived family cohesion.  $N = 183$ , Cronbach's  $\alpha$  for applicable scales are reported in parenthesis along the diagonal. Gender was coded 1 = male, 2 = female, financial obligation was coded 1 = low, 2 = high and marital status was coded 1 = married, 2 = single. Age, job tenure and family size were coded in years (i.e. they were entered as they were collected). Job burnout and perceived family cohesion were coded, such that higher scores indicated high job burnout and high perception of family cohesion.

\* $P < 0.05$ . \*\* $P < 0.01$ . \*\*\* $P < 0.001$ .

related to recovery ( $\beta = -0.54, P < 0.001$ ). Perceived family cohesion and family size were positively related to recovery ( $\beta = 0.22, P < 0.01$ ) and ( $\beta = 0.53, P < 0.001$ ) respectively.

For each hierarchical regression performed, predictor variables were entered within six successive steps. In step 1, demographic variables were entered as control. In steps 2, 3 and 4, standardized index of burnout, family cohesion and family size were entered, respectively. The interactions of burnout  $\times$  family cohesion and burnout  $\times$  family size were entered in steps 5 and 6, respectively. The results of the moderated multiple hierarchical regression analyses presented in Table 2 show that among the five control variables tested, only financial obligation and marital status were statistically significant ( $\beta = 0.36, t(183) = 4.88, P < 0.001$  and ( $\beta = -0.22, t(183) = -3.15, P < 0.001$ ), respectively. These control variables explained 18% ( $\Delta R^2 = 0.18$ ) of the variance in recovery and the  $F$  statistics of the model was significant,  $F(5,177) = 7.99, P < 0.01, R^2 = 0.16$ . Burnout was negatively related to recovery ( $\beta = -0.50, t(183) = -8.48, P < 0.001$ ). The contribution of burnout in explaining the variance in recovery was 24% ( $\Delta R^2 = 0.24$ ) and the  $F$  statistic of the model was significant,  $F(6, 176) = 21.32, P < 0.001, R^2 = 0.40$ . The unstandardized coefficient (B) for burnout in step 2 showed that the regression model was  $-4.23$  (95% CI =  $-5.21$  to  $-3.25$ ) indicating that for every one unit rise in burnout, recovery reduces by 4.23 units.

In step 3, perceived family cohesion was positively related to recovery ( $\beta = 0.16, t(183) = 2.69, P < 0.01$ ). The contribution of family cohesion in explaining the variance in recovery was 2% ( $\Delta R^2 = 0.02$ ) and the  $F$  statistics of the model was significant,  $F(7,175) = 19.95, P < 0.001, R^2 = 0.42$ . The B was 1.31 (95% CI = 0.35, 2.27) showing that for every one unit rise in perceived family cohesion, recovery increases by 1.31 units. Surprisingly, family size was positively related to recovery ( $\beta = 0.34, t(183) = 4.74, P < 0.001$ ). The contribution of family size in explaining the variance in recovery was 6% ( $\Delta R^2 = 0.06$ ) and the  $F$  statistics of the model was significant,  $F(8,174) = 22.40, P < 0.001, R^2 = 0.49$ . The B was 2.86 (95% CI = 1.67–4.05) showing that for every one unit rise in family size, recovery increased by 2.86 units.

The results of the analyses also show that the interaction between burnout and perceived family cohesion was statistically significant ( $\beta = -0.15, t(183) = -2.81, P < 0.01$ ), indicating that perceived family cohesion had a moderating effect on the negative relationship between burnout and recovery. Moreover, the B for the interaction of burnout and family cohesion in step 5 was  $-1.30$  (95% CI =  $-2.72$  to  $-0.88$ ), indicating a 13% reduction in burnout coefficient when the interaction was introduced. Simple slopes' analysis in Figure 2 for probing the significant interaction effects showed that the negative relationship between burnout and recovery was strongest for those that have high family cohesion, compared with

**Table 2.** The moderating roles of perceived family cohesion and family size in the relationship between job burnout and recovery

Variables	Step 1			Step 2			Step 3			Step 4			Step 5			Step 6		
	B	B	95%CI	B	$\beta$	95%CI	B	$\beta$	95%CI	B	$\beta$	95%CI	B	$\beta$	95%CI	B	$\beta$	95%CI
Gender	0.19	0.01	-2.27 to 2.65	-1.12	-0.06	-3.22 to 0.98	-1.08	-0.06	-3.15 to 0.98	-1.34	-0.08	-3.29 to 0.61	-1.27	-0.07	-3.19 to 0.64	-0.69	-0.04	-2.56 to 1.18
FO	2.87	0.34***	1.71 to 4.03	2.19	0.26***	1.19 to 3.18	2.09	0.25**	1.11 to 3.07	1.57	0.19**	0.62 to 2.52	1.51	0.18*	0.58 to 2.45	1.56	0.19**	0.66 to 2.46
MS	-4.26	-0.22***	-6.93 to -1.59	-3.81	-0.19	-6.07 to -1.55	-3.81	-0.18	-5.80 to -1.34	-0.20	-0.01	-2.72 to 2.34	0.47	0.02	-2.06 to 2.99	0.17	0.01	-2.27 to 2.60
Age	1.00	0.12	-0.45 to 2.45	0.79	0.09	-0.44 to 2.02	0.058	0.07	-0.64 to 1.79	0.74	0.09	-0.41 to 1.88	0.76	0.09	-0.37 to 1.89	0.69	0.08	-0.40 to 1.77
JT	-0.51	-0.06	-1.97 to 0.95	0.21	0.03	-1.03 to 1.45	0.12	0.01	-1.11 to 1.34	-0.32	-0.04	-1.48 to 0.85	-0.23	-0.03	-1.38 to 0.92	-0.39	-0.05	-1.49 to 0.72
JB	-4.23			-4.23	-0.50***	-5.21 to -3.25	-4.20	-0.50***	-5.17 to -3.23	-3.20	-0.38***	-4.21 to -2.20	-3.14	-0.38***	-4.13 to -2.16	-3.72	-0.44***	-4.71 to -2.73
FC	1.31						1.31	0.16	0.35 to 2.27	1.65	0.20	0.73 to 2.57	1.74	0.21**	0.83 to 2.64	-1.80	0.19**	0.73 to 2.47
FS	2.86									2.86	0.34***	1.67 to 4.05	2.93	0.35***	1.76 to 4.10	2.12	0.25***	0.92 to 3.32
JB $\times$ FC	-1.30												-1.30	-0.15	-2.22 to -0.39	-1.80	-0.21***	-2.72 to -0.88
JB $\times$ FS	-1.96															-1.06	-0.23***	-2.97 to -0.95
$R^2$	0.16			0.40			0.42			0.49			0.50			0.54		
$\Delta R^2$	0.18***			0.24***			0.02**			0.06***			0.02**			0.04***		
$\Delta F$	$F(5,177) = 7.99**$			$F(1,176) = 71.97***$			$F(1,175) = 7.23**$			$F(1,174) = 22.43***$			$F(1,173) = 7.88**$			$F(1,172) = 14.71***$		
$F$ -value	$F(5,177) = 7.99**$			$F(6,176) = 21.32***$			$F(7,175) = 19.95***$			$F(8,174) = 22.40***$			$F(9,173) = 21.58***$			$F(10,172) = 22.43***$		

FO, financial obligation; MS, marital status; JT, job tenure; JB, job burnout; FC, family cohesion; FS, family size; JB  $\times$  FC, job burnout  $\times$  family cohesion; JB  $\times$  FS, job burnout  $\times$  family size.

\*\* $P < 0.01$ ; \*\*\*  $P < 0.001$ .



those with low family cohesion. Furthermore, contrary to speculation, the results of the regression analyses show that the interaction between burnout and family size was statistically significant ( $\beta = -0.23$ ),  $t(183) = 2.81$ ,  $P < 0.001$ ) showing that family size had a moderating effect on the negative relationship between burnout and recovery. Besides, the unstandardized coefficient for the interaction between burnout and family size in step 6 was  $-1.96$  (95% CI =  $-2.97$  to  $-0.95$ ), indicating a 20% reduction in burnout coefficient when the interaction was introduced. Simple slopes' analysis in Figure 3 for probing the significant interaction effects showed that the negative relationship between burnout and recovery was strongest for those that had large family size, compared with those with small family size.

## Discussion

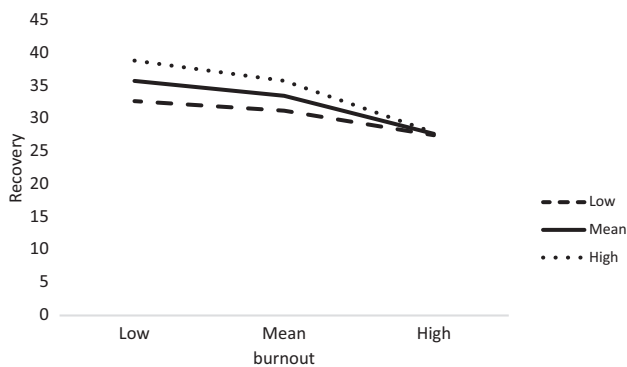
This study found that burnout was significantly negatively associated with recovery and supported the moderating role of family cohesion and family size on the negative relationship between burnout and recovery. The reason for such a negative relationship is understandable. Burnout results from prolonged exposure to stressors and this has been linked to negative outcomes [23]. The COR theory is fundamental in explaining this result. The tenets of the COR theory are that people endeavour

to preserve and accumulate resources in order to better navigate their way through life's challenges, and when these fail, poor psychological adjustment may result. Similar results have been documented earlier [24], which associated burnout with insufficient recovery from daily stressors.

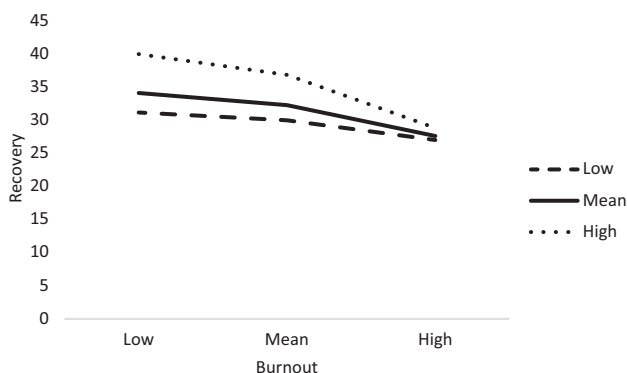
The study also found a significant positive relationship between perceived family cohesion and recovery. This result appears to be consistent with H2. It corroborates earlier studies [16], which established a positive relationship between higher familial cohesion, well-being, physical health and higher life satisfaction. The results of the moderation test showed that the negative relationship between burnout and recovery was strongest for those with high perception of family cohesion. This finding further endorses the assertion by Green and Werner that family cohesion is a protective factor against negative outcomes [15]. This moderation result tends to be supported by that of Sonnentag, Kuttler and Fritz, which found that poor recovery partially explained the association between work stress and exhaustion [25].

The present study also explored the link between family size and recovery, and its moderating effects. Contrary to expectation, the results showed that family size was positively related to recovery. More intriguing was the unexpected significant moderating effect of family size on the negative relationship between burnout and recovery; the negative relationship was strongest for those that had large family size. This result was not expected, because most similar earlier studies [17,18] reported a negative correlation between the number of children within a family and parents' marital satisfaction. This result underscores the fact that large family size is very effective in reducing individual burnout and creating opportunities for recovery. This is especially valid within the range of our data. The reason for this result could be that intragroup relationships among the Igbo ethnic group in Nigeria are characterized by mutual help, loyalty and cooperation. Families within this region appear to be cohesive and may provide resources that prevent burnout such as a shared commitment and unity of purpose and responsibility that has been suggested by researchers [26]. Household chores and childcare activities are enjoyable activities [27] capable of helping with recovery. This result seems to be supported by Onyishi et al., who discovered that the number of children predicted marital satisfaction in families of the Igbo ethnic group [4]. This finding seems to oppose some earlier studies focusing mainly on Western societies [28], which established that marital satisfaction of female parents with young children was lower than that of females who do not have any children.

Because the study revealed why perceived family cohesion and large family size are useful in recovery, training programmes that focus on inculcating healthy family relationship skills might be helpful. Such training will



**Figure 2.** The simple slope values for perceived family cohesion.



**Figure 3.** The simple slope values for family size.

widen employees' appreciation of family values to help them develop recovery systems. The results imply that ICU doctors of Igbo origin with a large family experience better recovery; these results could also be relevant for workers in other high stress occupations. The results could guide hospital management, policy makers and other stakeholders in this region.

This study utilized cross-sectional data, thus precluding any causal inferences. All the variables were assessed using self-report measures, raising issues regarding common method variance. The recommended procedural solution of keeping responses anonymous to minimize potential problems related to social desirability bias was adhered to. Another weakness of this study is that the specificity of the sample used does not allow generalization of its findings. The study population was exclusively Igbo ICU doctors and may not be representative of ICU doctors in Nigeria. Future research should consider wider populations. This study is also deficient in not considering both the dimensionality of recovery and recovery as a process. However, as studies on recovery begin to gain momentum in Nigeria, we suggest that the four dimensions of recovery and diary studies should be of consideration. Despite the fact that perceived family cohesion and family size were positively related to recovery, the study also showed that high perception of family cohesion and large family size provided opportunities for recovery to take place.

### Key points

- This study found that family size and cohesion determined burnout and recovery among intensive care doctors from the Igbo culture in Nigeria.
- These results have implications within the context of Igbo society but may not be generalizable elsewhere.
- Understanding these factors may be helpful in creating opportunities for recovery.

### Competing interests

None declared.

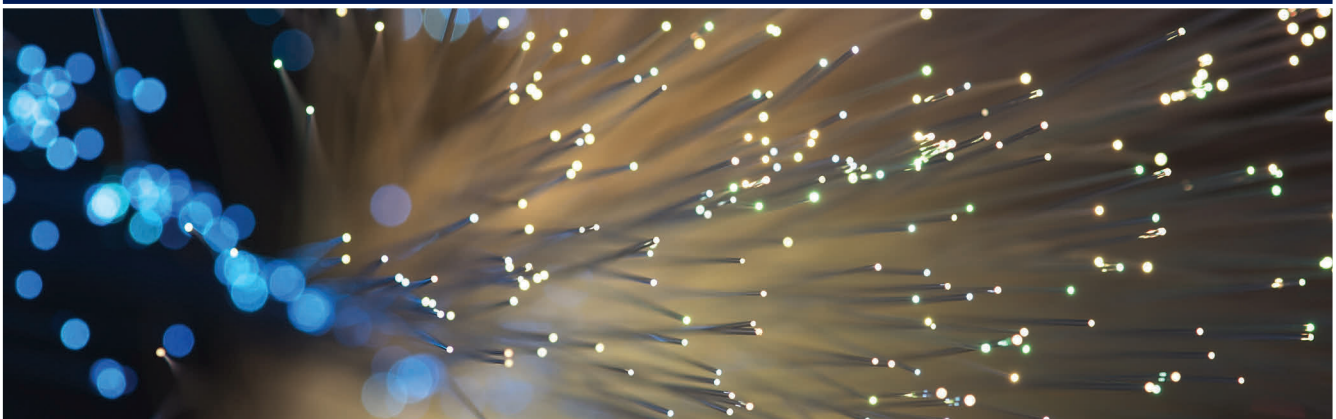
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