

THE MEDIATING ROLE OF LONELINESS IN THE RELATIONSHIP BETWEEN INTERNET ADDICTION AND BURNOUT LEVELS AMONG ACCOUNTANTS: AN EMPIRICAL STUDY USING PLS-SEM

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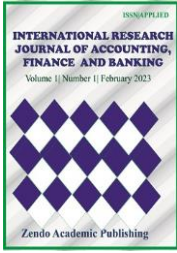
Abstract: This empirical study examines the mediating role of loneliness between internet addiction and burnout levels among accountants in Türkiye, using the partial least squares structural equation model (PLS-SEM). The survey method was used to gather 231 responses from accountants, and the results showed that loneliness partially mediated the relationship between internet addiction and burnout levels, specifically emotional exhaustion, depersonalization, and reduced personal accomplishment levels. This study contributes to the existing literature by exploring the mediating effect of loneliness on the relationship between internet addiction and burnout levels in the context of accounting. The findings provide valuable insights for employers and policymakers in developing strategies to manage the negative impact of internet addiction on burnout levels among accountants.

Keywords: Internet addiction, burnout, loneliness, accountants, partial least squares structural equation model, PLS-SEM, mediation

Introduction

Burnout has long been a common phenomenon among accountants (Herda and Lavelle, 2012). The accounting profession has been connected to high turnover rates (Fogarty and Uliss 2000); it has always been highly stressful. Demanding deadlines, limited time for personal life, and the high risk of possible firings creates stress for accountants, leading to emotional exhaustion, and resulting in a tendency toward higher turnover intentions (Jones et al., 2010; Chong and Monroe, 2015). Considering the serious consequences of burnout for both accountants and accounting firms, it is crucial to study possible remedies with which to prevent it. In order to prevent and mitigate the burnout experienced by accountants, it is very important to understand its determinants (Herda and Lavelle, 2012; Lambert et al., 2013). While there are a lot of studies which have examined job-related stressors as determinants of burnout, the literature focusing on the relationship between internet addiction and burnout among accountants is severely limited.

Internet addiction, which is characterized by excessive and uncontrollable internet usage, has been identified as a severe problem, especially among the younger population (Young, 1998). Several studies have indicated that excessive use of the internet also creates potentially harmful effects, such as poor grade performance of



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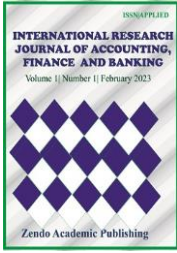
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students, discord within couples, and decreased work performance among employees (Young, 1998). Further research has revealed that internet addiction is a significant predictor of burnout (Liu and Ma, 2020). On the other hand, the combination of internet addiction with loneliness have been frequently examined together (Lelkes, 2013). Loneliness is defined as an unwelcome perceived feeling of social isolation (Beneito-Montagut, Cassián-Yde, and Begueria, 2018). A number of studies have shown the relationship connecting internet addiction with loneliness and burnout (Kraut et al., 1998). Although several studies have focused on the relationship between internet addiction, loneliness, and burnout, there is a scarcity of research on the mediating role of loneliness between internet addiction and burnout levels. Also lacking are empirical studies investigating these relationships within the ranks of accountants. Therefore, the purpose of this study is to examine the mediating role of loneliness within the relationship between internet addiction and burnout levels experienced by accountants.

Theoretical background and hypotheses

Burnout has been described as 'a state of exhaustion that results from failure, attrition, loss of energy and power, or unfulfilled wishes on human internal resources' (Freudenberger, 1974, p. 160). In the last decade, much research concerning burnout has highlighted different business areas. In one of the most widely accepted conceptualizations, it has been described as being composed of three dimensions, being: emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach and Jackson, 1986). While emotional exhaustion refers to the depletion of emotional and physical resources wherein the individual lacks the necessary energy to perform the required work, depersonalization is an uncaring and negative attitude toward different aspects of the job. Reduced personal accomplishment imply feelings of incompetency, lack of achievement, and low work productivity.

Reports in the literature state that the main causes of job burnout are workplace factors, rather than the personal characteristics of employees (Maslach and Jackson, 1981). It has also been observed that employees working in stressful jobs and/or workplaces are likely to suffer burnout (Maslach et al., 2001; Marek et al., 2017). Accountants have been ranked among the top ten most stressful occupations in the USA (Miller et al., 1988). Burned out accountants manifest a high turnover intention, poor job performance, and experience low levels of job satisfaction (Jones et al., 2010; Chong and Monroe, 2015). Although many studies have focused on the determinants of burnout such as job stressors (e.g., role conflict or role ambiguity) (Kalbers and Fogarty, 2005) and job attitudes (Dinc et al., 2020), there is a scarcity of research on the relationship between internet addiction and burnout within the ranks of accountants.



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Internet addiction is defined as ‘a psychological dependence on the internet, regardless of the type of activity once logged on’ (Kandell, 1998, p. 12). In the short term, internet addiction can be characterized by excessive and uncontrollable internet use (Young, 1998). The term ‘excessive use’, which appears in many studies of internet addiction, usually indicates that the amount of time spent online is an important factor for determining internet addiction. In Young’s study (1998), internet dependents reported spending a striking average of 39 hours per week online for nonacademic or nonemployment purposes, compared to the 5 hours reported by those who were not addicted to the internet. In recent years, this addiction has been identified as a severe problem, especially among the young population (Young, 1998) since it causes harmful effects such as poor grade performance among students, disagreement between partners, and diminished work performance among employees. Further research has indicated that significant levels of depression are associated with pathological internet use (Young and Rogers, 1998; Seabrook et al., 2016). For example, a study conducted with 93 families indicated that greater internet usage was positively linked to daily stress, depression, and loneliness. (Kraut et al., 1998).

Loneliness, which has been conceptualized under the terms of ‘perceived social isolation’ (Cacioppo et al. 2009) and ‘emotional isolation’ (Ditommaso et al., 2004), is **defined as a ‘discrepancy between one’s desired and achieved levels of social relations’ (Peplau and Perlman 1982, 32). It is a discrepancy that is experienced between the type of personal relationships that individuals have with the relationships they would like to have (Sermat, 1978). So, loneliness can be understood as the opposite of “social support” and a lack of company, and it is mostly related to the quality of the relationships a person enjoys (Grenade and Boldy 2008). Previous studies have shown that there is a positive relationship between internet use and loneliness (Lelkes, 2013; Beneito-Montagut, Cassián-Yde, and Begueria, 2018). In other words, those who are already lonely have a tendency to use the internet frequently (Tokunaga and Rains, 2010). However, studies provide strong evidence of the harmful effects through loneliness on health and wellbeing (Lunstad et al. 2015, Miyawaki, 2015). On the other hand, the literature has shown that frequency of internet use has been associated with loneliness and depression (Kraut et al., 1998). Based on the previous literature discussed above, the following hypotheses are posited:**

Hypothesis 1: Loneliness mediates the relationship between Internet Addiction and Emotional Exhaustion

Hypothesis 2: Loneliness mediates the relationship between Internet Addiction and Depersonalization

Hypothesis 3: Loneliness mediates the relationship between Internet Addiction and Personal Accomplishment

Research Methodology

The research hypotheses are tested using PLS-SEM (Partial Least Square based Structural Equation Modeling). As well, mediation analysis is utilized using Preacher & Hayes’s (2008) methodology with the PROCESS software. The research model is shown in Figure-1 below. It indicates the direct relationship

between the constructs as well as the indirect effects between internet addiction with personal accomplishment, emotional exhaustion, and depersonalization through loneliness.

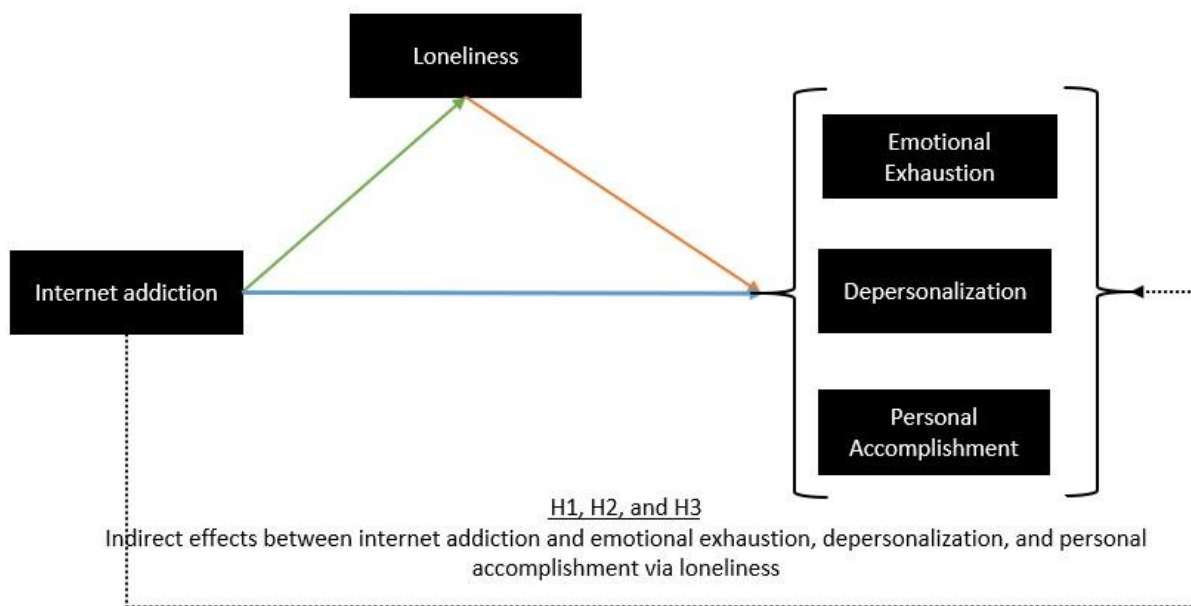


Figure 1: Proposed model

Data Collection

The items of the constructs of the internet addiction were adapted Young (1996)'s scale.

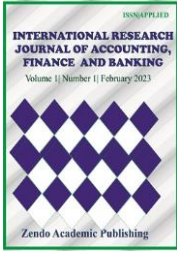
The items of the constructs for loneliness were adapted from the UCLA-loneliness scale developed by Russell (1996).

The items of the constructs relating to emotional exhaustion, depersonalization, and personal accomplishment were adapted from the Maslach Burnout Inventory, developed by Maslach and Jackson (1981), which contained three components: "emotional exhaustion," "depersonalization", and "personal accomplishments". The scales are supplied in English. Therefore, the survey questions which are in the English language are translated into the Turkish language. We use Brislin's (1966) back-translation method. The items in the constructs are measured using a five-point Likert Scale for which one indicates strongly disagree while five indicates strongly agree. The final form of the survey was then distributed.

The survey questionnaire was sent to respondents via an online survey tool. The participants were required to answer every question, thus ensuring that there is no missing values in the research sample.

Sample

After collection of the data set, data preprocessing was employed. There were no missing values, so no imputation was required. The variable inflation factors-VIF values show that there is no multicollinearity



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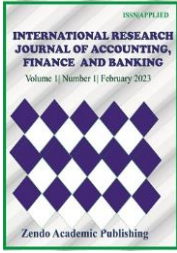
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issue. The VIF values are all less than the cut-off value of ten (Hair et. al., 2010). The final sample size comprised 231 accountants.

The summary statistics based on demographic indicators are provided in Table 1. The results reveal that 45% of the participants are born between 1966 and 1979, while less than 2% are born after 1996. In addition, the results show that approximately 77% of the participants are male, and 23% are female, 79% are married, 16% are divorced, less than 2% have a Ph.D. degree, 73% have an undergraduate degree, almost 21% have more than 26 years of experience, and approximately 11% have less than 5 years of experience.

Table 1: Distribution of the demographic variables

Variables	Categories	Frequency	Percent
Age level (Born year)	1945-1965	40	17.30
	1966-1979	104	45.00
	1980-1995	84	36.40
	1996-	3	1.30
	<i>Total</i>	<i>231</i>	<i>100.00</i>
Gender (Male vs Female)	Male	177	76.60
	Female	54	23.40
	<i>Total</i>	<i>231</i>	<i>100.00</i>
Marital status (Single, divorced, & married)	Single	37	16.02
	Divorced	11	4.76
	Married	183	79.22
	<i>Total</i>	<i>231</i>	<i>100.00</i>
Education level (High school – Ph.D. level)	Ph.D.	3	1.30
	Master	41	17.70



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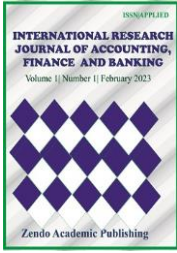
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Undergraduate	169	73.20
Associate	9	3.90
High School	9	3.90
<i>Total</i>	<i>231</i>	<i>100.00</i>

Experience (Years)	1-5	26	11.30
	6-10	32	13.90
	11-15	47	20.30
	16-20	37	16.00
	21-25	40	17.30
	26+	49	21.20
	<i>Total</i>	<i>231</i>	<i>100.00</i>

Factor Analysis

The items of the constructs are subject to EFA (Exploratory Factor Analysis) even though the scales of the constructs were adapted or modified in accordance with the aforementioned literature. The PAF (Principal Axis Factoring) as the extraction method, and the Promax as the rotation method are used to find the factors. The EFA's results are shown in Table 2. These results indicated that 39 items remained, following the elimination of the items with low factor loadings: ten items for internet addiction, sixteen items for loneliness, five items for emotional exhaustion, four items for depersonalization, and four items for personal accomplishment are used for measuring the indicated constructs. The factor loadings for internet addiction ranged between .62 and .81, for loneliness ranged between .60 and .85, for emotional exhaustion ranged between .71 and .89, for depersonalization ranged between .75 and .89, and finally, for personal accomplishment, ranged between .68 and .78, all of which are above the minimum factor loading of .35 based on the sample size of 231 (Hair, et. al., 2010). Moreover, the portion of the total variance that accounted for the extracted factors ranged between 2.38% (personal accomplishment) and 30.96% (internet addiction) while the cumulative portion of variance for which all the factors were accounted was 54.12%. In addition, the eigen-values of the latent variables ranged between 1.79 and 7.90 (based on after rotation). Furthermore, the adequacy of the used sample data set for EFA was satisfied, based on KMO (Kaiser, Meyer, & Olkin) test statistics ($KMO = 0.91$), which is greater than the suggested cut-off value of .70 (Hair et. al., 2010). Moreover, the Barlett's Sphericity test show that variables are sufficiently related to each other to perform EFA ($\chi^2=5706.54$, $df = 741$, $p\text{-value} = 0.0001$). Convergent validity, discriminant validity, and reliability were satisfied. The items within each factor are highly correlated, thus convergent validity is satisfied. Moreover,



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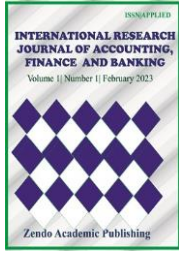
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the items of the factors are distinct and uncorrelated. The items have high loadings under each factor with there is no significantly high cross loadings among factors. Thus, discriminant validity is satisfied. Finally, Cronbach's Alpha results range between .72 and .94 which are greater than the suggested value of 0.70 (Hair et. al., 2010). Therefore, the reliability is satisfied.

Table 2: Exploratory Factor Analysis (EFA)

Items	IAD	LON	EEX	DEP	PAC
IAD1	0.72	0.21	0.18	0.23	0.09
IAD2	0.65	0.25	0.27	0.36	-0.10
IAD3	0.81	0.30	0.24	0.32	0.03
IAD4	0.81	0.34	0.28	0.31	-0.04
IAD5	0.71	0.27	0.29	0.35	-0.04
IAD6	0.74	0.30	0.27	0.29	-0.04
IAD7	0.68	0.30	0.24	0.28	0.01
IAD8	0.78	0.34	0.30	0.35	-0.02
IAD9	0.63	0.33	0.35	0.39	-0.06
IAD10	0.62	0.23	0.30	0.39	0.01
LON1	0.13	0.64	0.23	0.32	-0.42
LON2	0.41	0.80	0.43	0.51	-0.30
LON3	0.39	0.75	0.35	0.47	-0.29
LON4	0.34	0.76	0.41	0.46	-0.20
LON5	0.42	0.85	0.45	0.53	-0.25
LON6	0.07	0.60	0.17	0.22	-0.43
LON7	0.18	0.70	0.29	0.36	-0.43
LON8	0.32	0.69	0.43	0.40	-0.34
LON9	0.41	0.71	0.45	0.45	-0.18
LON10	0.10	0.72	0.21	0.27	-0.43
LON11	0.12	0.68	0.16	0.21	-0.40
LON12	0.37	0.69	0.37	0.39	-0.13
LON13	0.44	0.80	0.53	0.48	-0.29
LON14	0.09	0.61	0.21	0.25	-0.37
LON15	0.09	0.63	0.19	0.26	-0.42
LON16	0.37	0.78	0.41	0.45	-0.23
EEX1	0.33	0.41	0.85	0.51	-0.15
EEX2	0.34	0.43	0.88	0.61	-0.09



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EEX3	0.33	0.39	0.89	0.61	-0.12
EEX4	0.33	0.47	0.88	0.57	-0.14
EEX5	0.30	0.36	0.71	0.45	-0.05
DEP1	0.32	0.37	0.46	0.78	-0.04
DEP2	0.40	0.49	0.59	0.89	-0.13
DEP3	0.38	0.45	0.65	0.85	-0.06
DEP4	0.38	0.46	0.42	0.75	-0.10
PAC1	0.03	-0.25	-0.14	-0.01	0.70
PAC2	0.03	-0.38	-0.06	-0.11	0.78
PAC3	-0.12	-0.26	-0.11	-0.07	0.68
PAC4	-0.04	-0.32	-0.10	-0.10	0.77
Alpha*	0.890	0.940	0.900	0.83	0.72
Variance (%)	30.96	11.32	6.23	3.24	2.38
Cumulative percent of variance	30.96	42.28	48.51	51.75	54.12
Eigenvalues after rotation	7.90	7.37	8.41	9.81	1.79

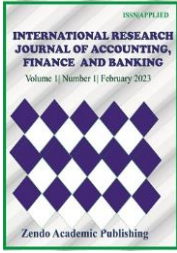
IAD: Internet addiction; LON: Loneliness; EEX: Emotional Exhaustion; DEP: Depersonalization; PAC: Personal Accomplishment

Principal Axis factoring as the extraction method and with Promax as the rotation method used;

*Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .91; Bartlett's Test of Sphericity: $\chi^2=5706.54$, $df=741$, $p\text{-value}=0.0001$ *Cronbach's Alpha*

Confirmatory Factor Analysis-CFA: The extracted five constructs are examined using confirmatory factor analysis. Thus, the latent variables (five factors) in a single model are included in CFA to determine their reliability, validity, and constructs' the model-fits (Fornell and Larcker, 1981). Table 3 reports the standardized regression weights, the values of the t-statistics of the corresponding items under each construct, and the model-fit performance measures. The model-fit measures indicate how well the factor structure accounts for the association between the variables in the dataset. The ML-Maximum Likelihood estimator is employed for the CFA. The analysis results, based on the ML estimator, indicated that χ^2/df is 1.71, the CFI (comparative fit index) is 0.92, the IFI (incremental fit index) is 0.93, the TLI (Tucker-Lewis index) is 0.91, the RFI (relative fit index) is 0.90, the GFI (goodness of fit index) is 0.90, and the RMSEA (root mean square error of approximation) is 0.05, all of which are sufficient based on the recommended threshold values (Bagozzi & Yi, 1988, and Hu & Bentler, 1999). As a result of the model-fit measurements, which were based on confirmatory factor analysis, a well model-fit measures are obtained.

Table 3: Confirmatory Factor Analysis (CFA)



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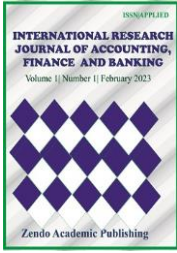
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Latent variable	Items	Standardized Regression Weights	t-value
Internet Addiction	IAD1	0.74	Scaling
	IAD2	0.60	7.39
	IAD3	0.75	11.14
	IAD4	0.79	10.38
	IAD5	0.70	9.01
	IAD6	0.70	10.03
	IAD7	0.62	8.58
	IAD8	0.73	9.79
	IAD9	0.56	7.28
	IAD10	0.59	8.13
Loneliness	LON1	0.75	Scaling
	LON2	0.70	10.71
	LON3	0.67	9.36
	LON4	0.71	10.57
	LON5	0.77	12.84
	LON6	0.62	9.01
	LON7	0.73	10.40
	LON8	0.67	10.16
	LON9	0.67	10.12
	LON10	0.70	10.51
	LON11	0.64	9.59
	LON12	0.65	9.29
	LON13	0.79	11.91
	LON14	0.58	8.42
	LON15	0.59	8.62
	LON16	0.73	10.58
Emotional Exhaustion	EEX1	0.79	Scaling
	EEX2	0.86	11.77
	EEX3	0.88	12.58
	EEX4	0.84	11.51
	EEX5	0.61	9.69
Depersonalization	DEP1	0.68	Scaling
	DEP2	0.80	9.68
	DEP3	0.80	9.96
	DEP4	0.61	7.89
Personal Accomplishment	PAC1	0.66	Scaling
	PAC2	0.55	6.23
	PAC3	0.68	6.70
	PAC4	0.64	6.38

$\chi^2(582) = 992.41$, $\chi^2/df = 1.71$, $CFI = .92$, $IFI = .93$, $TLI = .91$, $RFI = .90$; $GFI = .90$, $RMSEA = .05$

Measurement Model: Prior to testing the proposed hypothesis using Structural Equation Modeling (SEM), an investigation into the validity, reliability, and consistency of the latent variables was crucial (Hair, et. al., 2010). The Correlation analysis based on Pearson's coefficients, summary statistics, Average Variance Extracted (AVE) values, Composite Reliability (CR), Cronbach's Alpha and the square root of AVE values on the diagonal of the correlation matrix are provided in Table 4. The analysis results indicated that the reliability of the constructs was satisfactory, since the corresponding values of the latent variables' reliability values based on Cronbach's Alpha (ranging between 0.72 and 0.94) and the CR (ranging between 0.82 and 0.94) are both higher than the suggested value of 0.70 (Nunnally and Bernstein, 1994). Moreover, the convergent validity is satisfied since the AVE values (ranging between 0.51 and 0.72) are fairly above the



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suggested value of .50. Finally, the discriminant validity is satisfied since the square root of the AVE records at the diagonal of the matrix are greater than any inter-correlation coefficients.

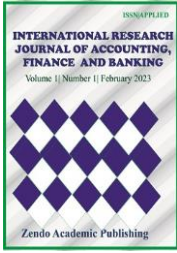
Table 4: Correlation analysis and reliability measures of the variables (N=231)

Latent Variables	<u>L1</u>	<u>L2</u>	<u>L3</u>	<u>L4</u>	<u>L5</u>
(1) Internet addiction	.72				
(2) Loneliness	.30**	.73			
(3) Emotional Exhaustion	.39**	.45**	.85		
(4) Depersonalization	.45**	.51**	.65**	.82	
(5) Personal accomplishment	.05	-.44**	-.012	-.09	.73
Mean	2.00	2.53	3.09	2.56	3.62
Std. Deviation	.72	.81	1.16	1.05	.74
Average Variance Extracted (AVE)	.51	.53	.72	.67	.54
Composite Reliability	.91	.94	.93	.89	.82
Cronbach's Alpha	.89	.94	.90	.83	.72

** $p < 0.01$; the elements on the diagonal are the square root of AVE, while the elements on the off-diagonals are the correlations between latent variables

Mediation Analysis: The hypotheses regarding mediation roles of selected variable are tested. The corresponding results are shown in Table 6, 7, 8, and 9. They summarize the association of internet with emotional exhaustion, depersonalization, and personal accomplishment via loneliness. For this analysis, the PROCESS Macro is used (Hayes, 2013) where the Bias-Corrected Bootstrapping methodology was used. Bootstrapping for the calculations of the 95% bias-corrected CIs (confidence intervals) of the direct, as well as the indirect, effects included the recommended number of 5,000 bootstrap resampling (Preacher and Hayes, 2008). In mediation analysis results, the effects obtained are statistically significant when the corresponding CI does not include zero. First of all, the mediation occurs when the indirect effect is statistically significant, namely the confidence interval does not include a zero value. In addition, the partial or the full mediation is determined by the significance level of direct effect. A full mediation occurs when the direct effect is not statistically significant, given that the indirect effect is significant, while a partial mediation occurs when the direct effect is statistically significant, given that the indirect effect is significant.

The mediation analysis results revealed that the indirect effect between internet addiction and emotional exhaustion, depersonalization, and personal accomplishment through loneliness were all statistically significant since the corresponding confidence intervals did not include zero, which confirms that mediation occurred. The next step was to determine whether these mediations were full or partial, following which the direct effects were investigated. Based on the significance levels of the direct effects, the mediations were all partial, since once again, the confidence levels of the direct effects of the proposed hypothesis did not include



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a zero value. Based on the mediation analysis results, there was a partial mediation between internet addiction with emotional exhaustion, depersonalization, and personal accomplishment through loneliness. Thus, the proposed hypotheses H1, H2, and H3 were supported.

Table 5: Mediation analysis

Hypothesis	Direct Effect	Indirect Effect	Result
H1) Internet Addiction→ Loneliness→ Emotional Exhaustion	0.45 <i>LLCI=.26,</i> <i>ULCI=.64</i>	0.18 <i>LLCI=.09</i> <i>ULCI=.29</i>	Partial mediation
H2) Internet Addiction → Loneliness → Depersonalization	0.48 <i>LLCI=.32</i> <i>ULCI=.64</i>	0.18 <i>LLCI=.11</i> <i>ULCI=.28</i>	Partial mediation
H3) Internet Addiction → Loneliness → Personal Accomplishment	0.20 <i>LLCI=.08</i> <i>ULCI=.32</i>	-0.15 <i>LLCI=</i> <i>.24</i> <i>ULCI=</i> <i>.09</i>	Partial mediation

LLCI-Lower Limit Confidence Interval; ULCI-Upper Limit Confidence Interval

Baron and Kenny (1986)'s four steps are shown below. The baseline analysis which incorporates the methodology of the four steps. The independent variable is denoted as (X) which is "human capital investment"; the mediator variable is denoted as (M) which is "innovation capital", and the dependent variables is denoted as (Y) are which are "ROA" and "Tobin's Q".

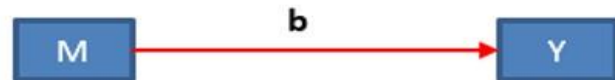
Step 1: Test for path *c* alone by conducting a simple regression analysis with X predicting Y.



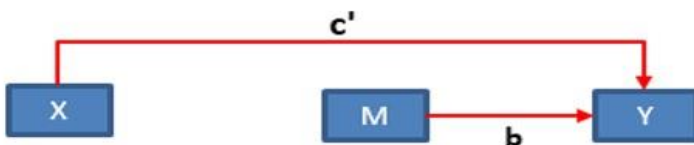
Step 2: Test for path *a* by conducting a simple regression analysis with X predicting M.



Step 3: Test for path *b* by conducting a simple regression analysis with M predicting Y.



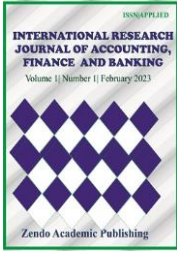
Step 4: Test for path *c'* (c-prime) by conducting a multiple regression analysis with X and M predicting Y.



Once a significant association was detected from step 1 through step 3, we checked step 4. Full mediation exists if X is no longer significant when M is controlled in step 4. Partial mediation exists if X and M both significantly predict Y in step 4.

Table 6: Mediating role of Loneliness between Internet Addiction and Emotional Exhaustion

	(1) Emotional Exhaustion	(2) Loneliness	(3) Emotional Exhaustion	(4) Emotional Exhaustion
	Step-1	Step-2	Step-3	Step-4
Internet Addiction	0.63*** (6.94)	0.35*** (4.84)		0.44*** (5.10)
Loneliness			0.66*** (8.84)	0.54*** (7.31)
Constant	1.74***	1.81***	1.42***	0.76***



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	(8.47)	(10.91)	(7.10)	(3.34)
<i>N</i>	231	231	231	231
<i>R</i> ²	0.17	0.09	0.25	0.33
adj. <i>R</i> ²	0.170	0.089	0.251	0.325
F-stat.	48.20***	23.46***	78.17***	56.37***

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Mediating role
Depersonalization

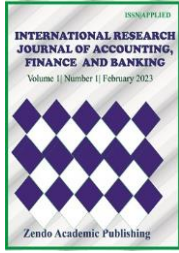
	(1)	(2)	(3)	(4)
	Step-1	Step-2	Step-3	Step-4
	Depersonalization	Loneliness	Depersonalization	Depersonalization
Internet Addiction	0.70*** (8.24)	0.35*** (4.84)		0.51*** (6.42)
Loneliness			0.69*** (9.66)	0.55*** (8.02)
Constant	1.05*** (5.41)	1.81*** (10.91)	0.82*** (4.30)	0.057 (0.27)
<i>N</i>	231	231	231	231
<i>R</i> ²	0.23	0.09	0.29	0.40
adj. <i>R</i> ²	0.225	0.089	0.287	0.393
F-stat.	67.89***	23.46***	93.36***	75.49***

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Mediating role of Loneliness between Internet Addiction and Personal Accomplishment

	(1)	(2)	(3)	(4)
	Step-1	Step-2	Step-3	Step-4
	Personal	Loneliness	Personal	Personal



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	Accomplishment		Accomplishment	Accomplishment
Internet Addiction	0.58**	0.35***		0.22***
	(7.85)	(4.84)		(3.55)
Loneliness			-0.41***	-0.47***
			(-7.69)	(-8.59)
Constant	3.41***	1.81***	4.58***	4.25***
	(21.86)	(10.91)	(32.23)	(25.38)
N	231	231	231	231
R ²	0.15	0.09	0.21	0.25
adj. R ²	0.149	0.089	0.202	0.240
F-stat.	0.72***	23.46***	59.17***	37.37***

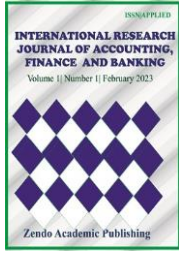
t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Discussion and Implications

This study is an empirical attempt through which to develop a theoretical framework for discovering the mediating effects of Loneliness on the relationship between Internet Addiction and Burnout dimensions such as Emotional Exhaustion, Depersonalization, and Reduced Personal Accomplishment among white-collar workers. Accountants in Turkiye were surveyed using an instrument comprised of empirically validated items (Young 1996, Russel 1996, and Maslach and Jackson 1981). Employing the 4-step approach recommended by Baron and Kenny (1986), we found Loneliness to be a mediating variable in the relationship between Internet Addiction and Burnout dimensions (see Tables 7, 8 and 9). More specifically, Loneliness was a partial mediator in explaining the relationship between the independent variable Internet Addiction and the dependent variables of Emotional Exhaustion, Depersonalization and Reduced Personal Accomplishment. Loneliness along with Internet Addiction could explain 32% of Emotional Exhaustion, 39% of Depersonalization and 24% of Reduced Personal Accomplishment. Burnout has been a recurring issue for accountants. It is critical that organizations succeed in reducing their employees' loneliness. In order to achieve this, employers may consider fostering connections among the accountants through support groups and socialization opportunities. Further study of the link between Loneliness and Internet Addiction is warranted to assist practicing accountants to thrive at their profession. Some research has also recommended that if organizations establish and develop policies to support and meet the needs of their employees, the emotional link between employees and their organizations will be strengthened. This will improve the performance of the employees and decrease any levels of burnout at the same time (Stohr et al., 1992). This study results recommend that accounting firms

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should make efforts to decrease the Loneliness level together with the Internet Addiction of their employees, in order to reduce their burnout level. Failing to do so could potentially contribute to an increased likelihood of emotional exhaustion, personal accomplishment and depersonalization of their employees.

Conclusion

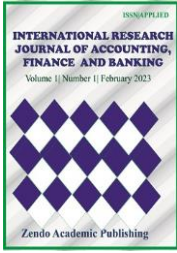
Our study found that Loneliness is a mediating factor in understanding the relationship between Internet Addiction and Burnout dimensions. By demonstrating the partial mediating effects of Loneliness, we have advanced knowledge of the relationship between the Internet Addiction and Burnout dimensions. The findings of the study are consistent with the literature (Holt-Lunstad et al., 2015; Miyawaki, 2015; Shaw and Gant, 2004; Kraut et al., 1998). The previous literature found that Internet addiction is positively correlated with depression and loneliness (Kraut et al., 1998). If internet usage can be managed properly, it can decrease loneliness and burnout significantly (Shaw and Gant, 2004).

Limitation/future work

The study has a few limitations. The sample included only accounting professionals. The choice of accounting professionals for the sample is a double-edged sword. Since accounting work is inherently solitary, it was an attractive subject to survey. Generalization of the findings from this study to other professional settings can be established only after more studies that include sample subjects from other disciplines as well are completed.

References

- Bagozzi R. P., & Yi Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16, 74–94. <https://doi.org/10.1177/009207038801600107>
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, 51(6), 1173. <https://doi.org/10.1037/0022-3514.51.6.1173>
- Beneito-Montagut, R., Cassián-Yde, N., & Begueria, A. (2018). What do we know about the relationship between internet-mediated interaction and social isolation and loneliness in later life?. *Quality in Ageing and Older Adults*, 19(1), 14-30. <https://doi.org/10.1108/QAOA-03-2017-0008>
- Brislin, R. W. (1986). The wording and translation of research instruments. In *Field methods in cross-cultural research*, ed. W. J. Lonner and J.W. Berry, 137-164. Newbury Park, CA: Sage.
- Cacioppo, J. T., Fowler, J. H. and Christakis, N. A., (2009). Alone in a crowd: The structure and spread of loneliness in a large social network. *Journal of Personality and Social Psychology*, 97, 977-991. <https://doi.org/10.1037/a0016076>



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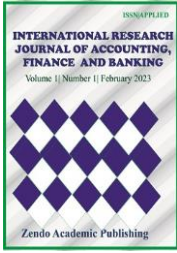
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- Chong, V.K. and Monroe, G.S. (2015). The impact of the antecedents and consequences of job burnout on junior accountants' turnover intentions: a structural equation modelling approach. *Accounting & Finance*, 55(1), 105–132. <https://doi.org/10.1111/acfi.12049>
- Dinc, M. S., Kuzey, C., Gungormus, A. H., & Atalay, B. (2020). Burnout among accountants: The role of organisational commitment components. *European Journal of International Management*, 14(3), 443–460. <https://doi.org/10.1504/EJIM.2020.107039>
- Ditommaso E, Brannen C, Best LA. (2004). Measurement and validity characteristics of the short version of the social and emotional loneliness scale for adults. *Educational and Psychological Measurement*, 64(1), 99–119. <https://doi.org/10.1177/001316440325>
- Fogarty, T. J., and B. Uliss. (2000). Auditor work and its outcomes: An application of the job characteristics model to large public accounting firms. *Advances in Accounting Behavioral Research*, 3, 37–68. [https://doi.org/10.1016/S1474-7979\(00\)03025-8](https://doi.org/10.1016/S1474-7979(00)03025-8)
- Fornell, C. and Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50. <https://doi.org/10.1177/002224378101800313>
- Freudenberger, H. J. (1974). Staff burnout. *Journal of Social Issues*, 30(1), 159–165. <https://doi.org/10.1111/j.1540-4560.1974.tb00706.x>
- Grenade, L. and Boldy, D. (2008). Social isolation and loneliness among older people: issues and future challenges in community and residential settings. *Australian Health Review*, 32(3), 468-478. <https://doi.org/10.1071/AH080468>
- Hair, J.F., Jr., Anderson, R.E., Tatham, R.L. and Black, W.C. (2010). *Multivariate Data Analysis with Readings*, 7th Ed. Englewood Cliffs, Prentice Hall, NJ.
- Hayes, A.F. (2013). *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-based Approach*. Guilford Press.
- Herda, D. N., & Lavelle, J. J. (2012). The auditor-audit firm relationship and its effect on burnout and turnover intention. *Accounting Horizons*, 26(4), 707-723. <https://doi.org/10.2308/acch-50181>



International Research Journal of Accounting, Finance and Banking (IRJAFB)

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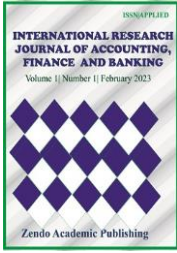
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- Holt-Lunstad, J., Smith, T.B., Baker, M., Harris, T. and Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality a meta-analytic review. *Perspectives on Psychological Science*, 10(2), 227-237. <https://doi.org/10.1177/1745691614568352>
- Hu, L., & Bentler, P. M. (1999). Cut off criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 55. <https://doi.org/10.1080/10705519909540118>
- Jones, A.III, Norman, C.S. and Weir, B. (2010). Healthy lifestyle as a coping mechanism for role stress in public accounting. *Behavioral Research in Accounting*, 22(1), 21–41. <https://doi.org/10.2308/bria.2010.22.1.21>
- Kandell, J. J. (1998). Internet addiction on campus: The vulnerability of college students. *Cyberpsychology & behavior*, 1(1), 11-17. <https://doi.org/10.1089/cpb.1998.1.11>
- Kalbers, L. P., & Fogarty, T. J. (2005). Antecedents to internal auditor burnout. *Journal of managerial issues*, 101-118. Link: <http://www.pittstate.edu/econ/jmi.html>
- Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998). Internet paradox: a social technology that reduces social involvement and psychological well-being. *American Psychologist* 53, 1017–1031. <https://doi.org/10.1037//0003-066x.53.9.1017>
- Lambert, E. G., Kelley, T., & Hogan, N. L. (2013). Hanging on too long: The relationship between different forms of organizational commitment and emotional burnout among correctional staff. *American Journal of Criminal Justice*, 38(1), 51–66. <https://doi.org/10.1007/s12103-012-9159-1>
- Lelkes, O. (2013). Happier and less isolated: internet use in old age. *Journal of Poverty and Social Justice*, 21(1), 33-46. <https://doi.org/10.1332/175982713X664047>
- Shaw, L. H., & Gant, L. M. (2004). In defense of the Internet: The relationship between Internet communication and depression, loneliness, self-esteem, and perceived social support. *Revista de Psicología del Trabajo y de las Organizaciones*, 37(2). <https://doi.org/10.1089/109493102753770552>
- Liu, C., & Ma, J. (2020). Social media addiction and burnout: The mediating roles of envy and social media use anxiety. *Current Psychology*, 39(6), 1883-1891. <https://doi.org/10.1007/s12144-018-9998-0>
- Marek, T., Schaufeli, W.B. and Maslach, C. (2017) Professional Burnout: Recent Developments in Theory and Research, Routledge.



International Research Journal of Accounting, Finance and Banking (IRJAFB)

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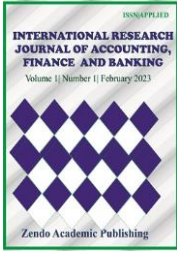
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- Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of Occupation Behavior*, 2(2), 99–113. <https://doi.org/10.1002/job.4030020205>
- Maslach, C., & Jackson, S. E. (1986). Maslach burnout inventory (2nd ed.). Consulting Psychologists Press.
- Maslach, C., Schaufeli, W.B. and Leiter, M.P. (2001). Job burnout. *Annual Review of Psychology*, 52(1), 397–422. <https://doi.org/10.1146/annurev.psych.52.1.397>
- Miller, A., Springen, K., Gordon, J., Murr, A., Cohen, B. and Drew, L. (1988). Stress on the job. *Newsweek*, 25(1), 40–45.
- Miyawaki, C.E. (2015). Association of social isolation and health across different racial and ethnic groups of older Americans. *Ageing and Society*, 35(10), 2201-2228. <https://doi.org/10.1017/S0144686X14000890>
- Nunnally, J. C., & Bernstein, I. H. (1994). The theory of measurement error. *Psychometric Theory*, 3, 209-247.
- Peplau, L.A. and Perlman, D. (eds), 1982. Loneliness: A sourcebook of current theory, research, and therapy. Wiley, New York.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40(3), 879–891. <https://doi.org/10.3758/brm.40.3.879>
- Russell, D. W. (1996). UCLA Loneliness Scale (Version 3): Reliability, validity, and factor structure. *Journal of personality assessment*, 66(1), 20-40. https://doi.org/10.1207/s15327752jpa6601_2
- Seabrook, E. M., Kern, M. L., & Rickard, N. S. (2016). Social networking sites, depression, and anxiety: A systematic review. *Jmir Mental Health*, 3(4), e50. <https://doi.org/10.2196/mental.5842>
- Sermat, V. (1978). Sources of loneliness. *Essence*, 2, 271-276.
- Stohr, M., Self, R. and Lovrich, N. (1992). Staff turnover in new generation jails: An investigation of its causes and preventions. *Journal of Criminal Justice*, 20, 455–478. [https://doi.org/10.1016/0047-2352\(92\)90080-S](https://doi.org/10.1016/0047-2352(92)90080-S)



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Tokunaga, R.S. and Rains, S.A. (2010). An evaluation of two characterizations of the relationships between problematic Internet use, time spent using the Internet, and psychosocial problems. *Human Communication Research*, 36(4), 512-545. <https://doi.org/10.1111/j.1468-2958.2010.01386.x>

Young, K. S. (1998). *Caught in the Net*. New York: John Wiley & Sons.

Young, K. S. (1996, August). Internet addiction: The emergence of a new clinical disorder. Poster presented at the 104th American Psychological Association Annual Convention, Toronto, Canada

Young, K. S., & Rogers, R. C. (1998). The relationship between depression and Internet addiction. *Cyberpsychology & behavior*, 1(1), 25-28. <https://doi.org/10.1089/cpb.1998.1.25>