

Effects of intolerance of uncertainty on turnover intention in transplantation coordinators: the roles of burnout and grit

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Background: Transplantation coordinators are essential professionals who play a wide range of roles in organ transplantation. Their burnout levels have been shown to be very high due to the significant uncertainty they experience at work. The taxing conditions that accompany their position can increase turnover, which can, in turn, lead to a decrease in the number of experts working in the field. This calls for an improved understanding of their turnover intentions.

Methods: We collected data of 80 transplantation coordinators and measured their intolerance of uncertainty, burnout, turnover intention, and grit. The data were analyzed using a multiple regression analysis.

Results: A mediation model was confirmed in which intolerance of uncertainty significantly increases burnout, which, in turn, increases turnover intention. The moderating effects of grit on the relationship between intolerance of uncertainty and turnover intentions were also found to be significant. When grit was low, overall turnover intention was high, regardless of intolerance of uncertainty. Conversely, when grit was high, the intention to leave was high only when the intolerance of uncertainty was also high.

Conclusions: There is a high level of uncertainty among transplantation coordinators due to the nature of the work; however, the degree to which the uncertainty is accepted varies individually. It is therefore necessary to seek ways to manage the uncertainty at an organizational and personal level. These efforts could contribute to improving transplantation coordinators' long-term service and expertise.

Keywords: Transplantation coordinator; Intolerance of uncertainty; Turnover intention; Burnout; Grit

INTRODUCTION

Transplantation coordinators (TCs) are important stakeholders in all aspects of organ and tissue transplantation, coordinating the entire process, and working with organ

donors or their guardians, medical staff, and medical institutions. They are in charge of a wide variety of tasks and must also manage unexpected situations as they perform their tasks [1]. Due to the high levels of uncertainty in their work, TCs experience significant stress and burnout, which can cause them to change jobs. We require a more

HIGHLIGHTS

- Transplantation coordinators with high intolerance of uncertainty (IOU) tend to have high turnover intention.
- The association between IOU and turnover intention is mediated by burnout.
- High IOU leads to more burnout, which leads to higher turnover intention.
- The relationship between IOU and turnover intention is moderated by grit.
- The interaction effect between IOU and grit is significant.

in-depth understanding of TCs' turnover because this high turnover among TCs leads to a decreased number of experts and could eventually cause a decline in medical expertise and service quality. The importance of organ transplanting is widely understood but few systematic studies of TCs or interventions into their well-being have been done. This study examined the relationships among the variables that affect turnover intention among TCs. Its results can contribute toward policymaking to reduce turnover intention among TCs.

A major characteristic of the work of a TC is its uncertainty. Therefore, intolerance of uncertainty [2] has a significant impact on job stress and intention to change jobs among TCs. People with high intolerance of uncertainty consider situations that they cannot fully anticipate or control to be stressful and negative. They do not function well in situations of high uncertainty, they express excessive concern about uncertain situations or events, and they try to avoid them [3,4]. However, these avoidance strategies may result in even more negative experiences [5]. A TCs' work requires contact with a wide range of people, including donors, donors' guardians, and medical staff, which increases the likelihood of unpredictable outcomes in their work. Therefore, it is likely that the ability to withstand uncertainty can play an important role in a TC's performance and their ability to adapt to their circumstances.

It has been confirmed that intolerance of uncertainty is related to stress-coping strategies, life satisfaction, and career-related variables [6], as well as to turnover intention [7]. Turnover intention refers to an individual's decision to leave their organization of employment. It has a positive relationship with actual turnover and is the main factor that determines it [8,9]. Based on existing studies, we hy-

pothesized that intolerance of uncertainty would have a positive relationship to TCs' willingness to work (H1).

Burnout is another important variable in predicting turnover. Burnout is defined as a "psychological phenomenon involving symptoms such as emotional exhaustion, dehumanization, and lack of personal fulfillment, which appear to be a reaction to an individual's prolonged exposure to stress at work" [10]. This is particularly applicable to medical workers who, due to the nature of their work, constantly interact with people who have diverse needs [11,12]. In addition, based on studies in which intolerance of uncertainty was found to positively predict burnout in counseling service providers [13] and others in which psychological burnout was shown to lead to serious consideration of turnover [14,15], we hypothesized that intolerance of uncertainty increases burnout, thereby also increasing turnover intention (H2).

Attitudes toward turnover vary according to an individual's characteristics, even if difficulties are experienced due to high work uncertainty. Thus, grit can potentially act as a moderator. Grit is defined as passion and perseverance in pursuit of long-term goals. It is a widely used factor that predicts career success, achievement, psychological well-being, and tenure [16]. Those with high grit persevere in the field that they are interested in, set goals, and overcome failures and frustrations well. They also tend to focus on achieving long-term goals, rather than focusing on more immediate negative situations or failure-related information [17]. Specifically, if a TC shows a high tendency to persevere—one of two sub-factors of grit (persistence of effort, consistency of interest)—they are less affected by the negative impacts of intolerance of uncertainty. Based on this, we hypothesized that the effects of intolerance of uncertainty on turnover intention can vary according to the individual's grit (H3). This study investigated the relation-

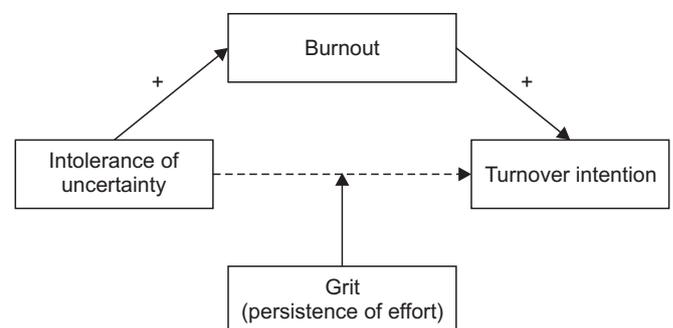


Fig. 1. Conceptual model of research.

Table 1. Means, standard deviations, and correlation coefficients

Variable	Mean±SD	1	2	3	4
1. IOU	3.26±0.48	-			
2. BO	2.56±0.51	0.35 ^{a)}	-		
3. Grit	3.41±0.54	0.04	-0.26 ^{b)}	-	
4. TI	3.16±0.81	0.25 ^{b)}	0.57 ^{a)}	-0.20	-

SD, standard deviation; IOU, intolerance of uncertainty; BO, burnout; TI, turnover intention.

^{a)}P<0.001; ^{b)}P<0.05.

ships between the psychological predictors of turnover intention using empirical data from TCs. We present our research model in Fig. 1.

METHODS

We obtained informed consent from all participants before the survey. Since this study was not required the approval of Institutional Review Board (IRB), we did not consider IRB review.

Participants

A total of 82 TCs participated by completing a 15-minute questionnaire. Data from 80 respondents (F=69, average age=37.33 years) were analyzed after two incomplete responses were excluded. The participants' affiliations were transplantation center (62.5%), Korea Organ Donation Agency (13.9%), and department of neurology (8.9%). Their positions were nurse (60%), head nurse (8.8%), chief nurse (7.5%), and organ procurement coordinator (23.8%).

Materials

To measure intolerance of uncertainty, we used the intolerance of uncertainty scale-short form (IUS-12) that consists of 12 items with possible responses provided on a 5-point scale from 1="not like me at all" to 5="very much like me." The scale was developed by Carleton et al. [18]. The internal reliability of the scale, measured by Cronbach's α , was 0.79 for this study. The Maslach Burnout Inventory [19] was used to measure psychological exhaustion. This tool includes three sub-scales: emotional fatigue, personal fulfillment, and depersonalization. We used the total mean of 22 items and the Cronbach's α was 0.87. Grit was assessed with the Original Grit Scale that consists of 12 items with possible responses along

Table 2. Hierarchical regression analysis for the mediation model

	Variable	β	t	P-value
Step 1	IOU → turnover intention	0.25	2.28	0.025
Step 2	IOU → burnout	0.35	3.34	0.001
Step 3	burnout → turnover intention	0.54	5.43	0.000
	IOU → turnover intention	0.06	0.58	0.564

t, t-score; IOU, intolerance of uncertainty.

a 5-point scale. The scale was developed by Duckworth et al. [16] and includes two sub-scales: perseverance and consistency of interest. In this study, we used the perseverance score, following previous research that showed limitations to the consistency factor [20]. The Cronbach's α for the six items that assess persistence was 0.73. Turnover intention was measured using a five-item validated scale developed by Becker [21]. The internal reliability of this scale was 0.82.

Statistical Analysis

We analyzed our research model following the steps proposed in previous studies [22,23]. We conducted a correlation analysis before we proceeded with our analysis of the mediation and moderation model. To verify our research model, we used the PROCESS macro [23]. First, we used a regression analysis to verify the relationship between intolerance of uncertainty and turnover intention (H1). Next, the PROCESS model 4 was used to analyze the mediating effect of burnout (H2). Last, PROCESS model 5 was used to examine the moderation effect of grit (H3). The P<0.05 were considered to represent statistical significance.

RESULTS

Descriptive Statistics

Table 1 presents the descriptive statistics of the study variables (mean, standard deviation [SD], and correlation coefficient). Most of our study variables were significantly associated with each other, with the exception of intolerance of uncertainty (mean±SD, 3.26±0.48) and grit (mean±SD, 3.42±0.54) on the one hand and turnover intention (mean±SD, 3.16±0.81) and grit on the other. Burnout (mean±SD, 2.56±0.51) was significantly associated with all other research variables.

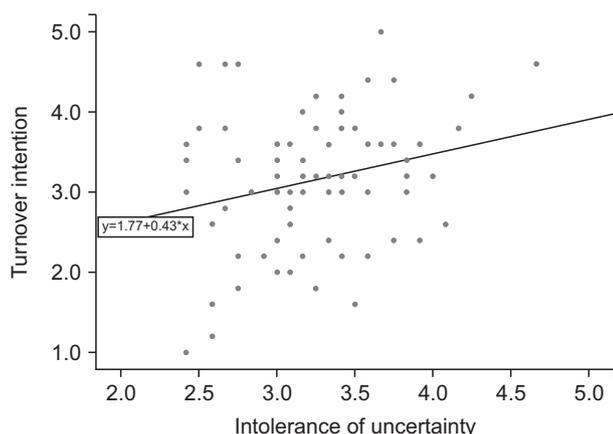


Fig. 2. Simple regression with scatter plot.

Mediation Model

We conducted a linear regression analysis to test H1. The results suggested a positive association between intolerance of uncertainty and turnover intention. The results presented in Table 2 shows that intolerance of uncertainty significantly predicts turnover intention ($\beta=0.25$, $R^2=0.063$, $P<0.05$), supporting H1.

To test the mediating effect of burnout (H2), we used Baron and Kenny's method [22]. Table 2 presents the regression coefficients of the variables. Step 1 and 2 shows simple regressions of intolerance of uncertainty and turnover intentions ($\beta=0.25$, $R^2=0.063$, $P<0.05$) and intolerance of uncertainty and burnout ($\beta=0.35$, $R^2=0.125$, $P<0.01$) (Fig. 2), respectively. We found the mediating effects of burnout to be significant, showing full mediation. Specifically, for high values of intolerance of uncertainty, more burnout was experienced, which, in turn, led to stronger turnover intention. An additional analysis of the 95% bias-corrected confidence interval (CI) with a 5,000 bootstrapping method also supported the mediation effect of burnout (boot 95% CI, 1,041–5,356).

Moderation Model

We used the PROCESS macro [23] to test the moderation effect of grit when controlling for burnout. We chose the PROCESS macro model 5 to verify the moderation effect of grit on the relationship between intolerance of uncertainty and turnover intention (H3). The results show that the interaction term between intolerance of uncertainty and grit was statistically significant ($\beta=1.14$; standard error, 0.28; $P<0.001$). For low values of grit, overall turnover intention was high. However, where grit was high, turnover intention

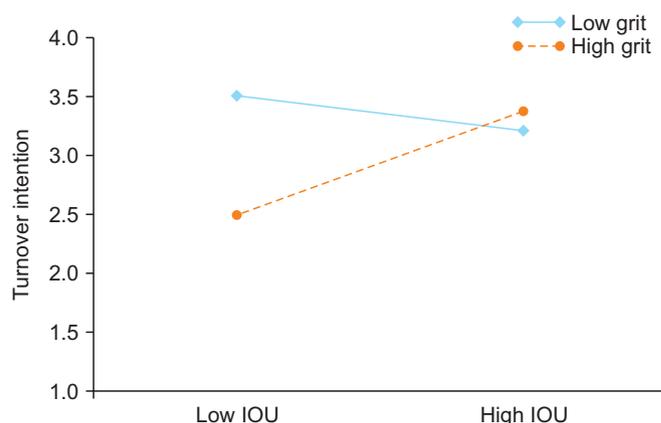
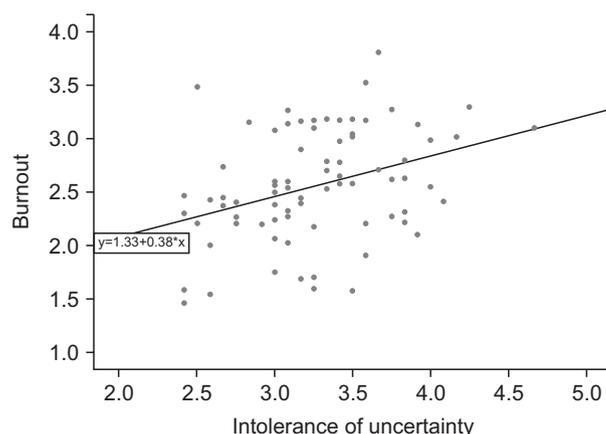


Fig. 3. Moderating effect of grit on the relationship between intolerance of uncertainty (IOU) and turnover intention. Data was analyzed using the PROCESS macro. For low values of grit, overall turnover intention was high. However, where grit was high, turnover intention varied, depending on the level of IOU.

varied, depending on the level of intolerance of uncertainty (Fig. 3).

DISCUSSION

This study empirically explored the relationships among variables that could affect the turnover intention of TCs. TCs are important healthcare professionals who play a wide range of roles in transplantation; however, research on this occupation has been relatively lacking. In this study, we provided a practical basis for intervention by

specifically examining the roles of burnout and grit in the relationship between intolerance of uncertainty and TCs' turnover intention.

First, as expected, TCs who lacked tolerance of uncertainty, became exhausted more readily at work and showed higher turnover intention. These results suggest that tolerance of uncertainty is an important competency for TCs. A previous study shows that people with high intolerance of uncertainty believe that uncertainty itself is negative and feel that nothing can be done in an uncertain situation [24]. This negative evaluation of the work environment and the resulting feelings of helplessness inevitably lead to unpredictable performance. Therefore, on an individual level, education or training on interpreting and coping with uncertain situations is needed. At an organizational level, systematic efforts are needed to eliminate as much uncertainty as possible in the working environment of TCs. We also found that burnout mediates the relationship between intolerance of uncertainty and turnover. Given that intolerance of uncertainty is closely related to individual temperament, it is therefore not easy to change. This indicates that if intervention is commenced to reduce TC burnout, the impact of intolerance of uncertainty on TCs' turnover intention can be reduced.

The moderating effect of grit implies the necessity of creating a working environment in which grit can be exercised. This study found that where grit is low, overall turnover intention is high, even if the intolerance of uncertainty is low. Conversely, where grit is high, turnover intention is high only when intolerance of uncertainty is also high. These results mean that turnover intention is reduced only when grit is high, even if tolerance of uncertainty is high. Moreover, this protection effect of grit is rarely present if the tolerance of uncertainty is low. Previous studies have revealed that when the grit is high, turnover intention is low for nurses, salespersons, and teachers [25-27]. The results of this study show that this holds true for TCs. To better understand turnover intention among TCs, it is suggested that personal characteristics such as tolerance of uncertainty and grit, must be assessed together. Previous studies have shown that even those with higher grit can display varying levels of performance and varying diverse attitudes [28,29]. It is therefore necessary to examine whether an organization or its work climate enables the exercise of grit instead of simply selecting or deploying individuals with high grit. One thing to consider is that people with high grit display their abilities more clearly when they feel that their goals are related to their social values and other

people's happiness. Although TCs' work is of high social significance, it is likely that this cannot be deeply felt if the TC only focuses on handling the present task in their busy schedule. Therefore, to develop grit, it will be helpful to explore the meaning and value of the TC's work and find ways to actively reward it.

The most significant contribution of this study is that, to the best of our knowledge, it is the first study to explore the psychological factors affecting the turnover intention of TCs. Although there have been some studies on burnout among TCs, there have been few that have investigated turnover intention in the same demographic. This study found that psychological factors, such as intolerance of uncertainty, burnout, and grit, affect TCs' intention to change jobs, providing knowledge related to practical implications for intervention to reduce turnover. In addition, this study expanded the field of knowledge on grit, a factor that has, to date, only been studied for specific occupational groups, such as teachers, students, and soldiers.

This study had some limitations. Because its findings are based upon the results of a one-time survey, it is necessary to clarify the relationship between the variables in longitudinal studies. In addition, as there are only about 200 TCs in all of Korea, our sample (n=80) can be regarded as representative of TCs; however, replication of this study using the entire population of TCs in the country will be necessary. Last, to address minimizing the work uncertainty perceived by TCs, studies of the factors affecting uncertainty perception should also be conducted.

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Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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