

Examining Resident Burnout Through the Lens of Self-Determination Theory: The Role of General Causality Orientations

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ABSTRACT

Background Burnout continues to plague graduate medical education, and theory-informed approaches are lacking for effectively tackling this problem. Studies on personal factors that explain physician burnout have also neglected the role of self-determination. In self-determination theory, general causality orientations—*autonomy*, *control*, and *impersonal*—represent individual differences in self-determination that can be socialized and primed within environments, each relating to different motivation, behavior, and well-being outcomes.

Objective To investigate how each general causality orientation relates to resident burnout, the hypothesis being that the *autonomy* orientation will negatively correlate, while the *control* and *impersonal* orientations will positively correlate.

Methods Surveys containing demographic questions and 2 scales—the Causality Orientations at Work Scale and Oldenburg Burnout Inventory—were sent in 2023 to a sample of Canadian residents across 3 institutions. Correlation and multiple regression analyses were performed, controlling for significant demographic factors.

Results A total of 243 of 1200 residents (20.5%) completed the survey. The 3 general causality orientations accounted for 31.5% of the variance in resident burnout, with *autonomy* correlating negatively ($B=-0.24$; $P<.001$; 95% CI, -0.37 to -0.11) and *control* ($B=0.20$; $P=.003$; 95% CI, 0.07 to 0.33) and *impersonal* ($B=0.28$; $P<.001$; 95% CI, 0.13 to 0.42) correlating positively.

Conclusions Resident burnout is positively associated with the *control* and *impersonal* causality orientations, and negatively associated with the *autonomy* causality orientation.

Introduction

Burnout—characterized by exhaustion and disengagement from job demands outweighing resources¹—affects more than 50% of residents worldwide.^{2,3} Job demands, such as long working hours, heavy workloads, and emotional stress, often exceed available resources like time for rest, supportive supervision, or opportunities for professional growth. This imbalance has serious consequences, including poorer conduct and patient care,^{4,6} medical errors and safety incidents,^{7,8} and mental health concerns such as depression, suicidal ideation, and substance abuse.^{9,10} In response, the Accreditation Council for Graduate Medical Education (ACGME) has mandated that graduate medical education (GME) programs address resident burnout.^{11,12} However, current approaches to combatting burnout have largely been ineffective.³ This is partly because they lack grounding in robust theoretical frameworks, limiting the design of targeted, impactful wellness interventions.

General causality orientations (GCOs), described in self-determination theory,¹³ represent a key personal resource that influences how people orient to their environment and regulate their behavior. Individuals vary in the extent to which they take interest and act with autonomous motivation (*autonomy* orientation); focus on rewards, punishments, or approval (*controlled* orientation); or perceive environments as uncontrollable and feel overwhelmed or disengaged (*impersonal* orientation).¹⁴ GCOs can thus affect how people experience and manage job demands and resources. For instance, autonomy-oriented individuals are more likely to stay engaged and motivated, even in demanding contexts.^{15,16} In contrast, control- and impersonal-oriented individuals are more vulnerable to burnout when faced with stress or unsupportive environments.^{15,17,18} Although these orientations have been shown to impact motivational, emotional, and well-being outcomes,¹⁹⁻²¹ their role in resident burnout has not been investigated. This gap limits our understanding of how personal resources, such as GCOs, interact with the demanding GME environment to either exacerbate or mitigate burnout.

Examining how GCOs relate to burnout provides an opportunity to address this persistent and widespread issue. By understanding how individual differences in

DOI: <http://dx.doi.org/10.4300/JGME-D-24-00481.1>

Editor's Note: The online supplementary data contains the survey used in the study.

self-determination relate to burnout, this study aims to inform the development of systemic interventions that create learning/work environments where residents are supported and engaged. Such an approach moves beyond one-size-fits-all wellness strategies, offering a framework for addressing burnout that acknowledges personal resources and workplace demands.

Methods

Setting and Participants

All residents, across 3 Canadian medical schools, were invited to complete an anonymous online survey distributed via their medical program and resident newsletter. The survey (provided as online supplementary data) was sent in October 2023 and was open for 8 weeks with one reminder. It contained a brief demographic section and the Causality Orientations at Work Scale (COWS) and Oldenburg Burnout Inventory (OLBI) instruments. A random prize draw for a \$50 Starbucks gift card was offered as an incentive (optional).

Measures

Self-Determination: The COWS measures the strength of the 3 GCOs—*autonomy*, *control*, *impersonal*—at work.²² The COWS has shown good reliability in medical education.²³ It contains 11 vignettes—each presenting 3 ways of responding on a scale from 1 (very unlikely) to 7 (very likely) based on each subscale—*autonomy*, *control*, and *impersonal*. Mean scores were computed for each subscale, with higher scores meaning a stronger workplace orientation.

Burnout: The OLBI is a 16-item scale measuring occupational burnout. It has 2 subscales²⁴—*exhaustion* and *disengagement*—and has been used with residents.²⁵ The OLBI uses a 4-point scale from 1 (strongly agree) to 4 (strongly disagree), where higher scores indicate more burnout.

Analysis

We computed means, standard deviations, and Cronbach alpha reliability estimates. Variable relations were assessed using Pearson correlations or analysis of variance (ANOVA). As each GCO is said to coexist within an individual (ie, they are not considered mutually exclusive),¹⁴ a multiple linear regression was performed to assess the association between each GCO and burnout, controlling for significant demographic factors. Standardized regression coefficients and 95% confidence intervals (CI) were used.

Approval was obtained by the Research Ethics Board at the University of Saskatchewan (#3245),

University of Calgary (#23-0469), and University of Alberta (#23-0469).

Results

In total, 291 of 1200 residents (24.3%) participated in the survey. However, 48 of the 291 (16.5%) were excluded for being incomplete, leaving 243 (20.5% response rate; TABLE 1). Men and women were relatively under- and overrepresented in this study, based on local institutional data and the published national averages (approximately 45% and 55%, respectively).²⁶ The sample size in this study was considered sufficient, based on commonly used heuristics.²⁷ The Cronbach alphas for the GCO and burnout variables ranged from 0.79 to 0.91 (see TABLE 2), indicating good reliability. Two participants identified as nonbinary, and one did not indicate their gender. We thus excluded these cases from the ANOVA, due to low group size. Burnout scores did not differ by gender ($F(1, 212)=0.01, P=.96$) or program ($F(8, 205)=1.63, P=.12$), but differed by year, ($F(4, 211)=3.56, P=.008$). Tukey's post hoc tests showed that first-year residents had the lowest burnout scores ($M=2.41, SD=0.42$) and differed from third-year residents ($M=2.70, SD=0.44$) who scored the highest ($MD=-0.63; SE=0.20; P=.017$).

Next, burnout was regressed onto the 3 GCOs, controlling for year. The overall model was significant ($R^2=0.315; F(4, 197)=22.66; P<.001$). *Autonomy* was associated with lower burnout ($B=-0.24; P<.001; 95\% \text{ CI}, -0.37 \text{ to } -0.11$); and *control* ($B=0.20; P=.003; 95\% \text{ CI}, 0.07 \text{ to } 0.33$) and *impersonal* ($B=0.28; P<.001; 95\% \text{ CI}, 0.13 \text{ to } 0.42$) were associated with higher burnout. Year was not associated with burnout overall ($B=0.09; P=.12; 95\% \text{ CI}, -0.02 \text{ to } 0.16$).

Discussion

In this study, GCOs accounted for 32% of the variance in resident burnout, with *autonomy* correlating negatively and *control* and *impersonal* correlating positively. This pattern aligns with other self-determination theory and education studies²⁸⁻³¹ and suggests that the *autonomy* GCO buffers burnout, while the *control/impersonal* GCOs facilitate it.

Autonomy-oriented individuals have an internal perceived locus of causality (I-PLOC: belief that one is the initiator/sustainer of one's own behavior³²), which promotes engagement and resilience.³⁰ Conversely, *control*-oriented individuals have a more external PLOC (E-PLOC: belief that one "must" or "should" do something, due to external/internal pressure). They respond to stress in more reactive and defensive ways,³⁰ undermining well-being.³² Being *impersonally* oriented invokes a more inactive PLOC (belief that one cannot control outcomes), which

TABLE 1
Participant Characteristics (N=243)

Characteristic	n (%)
University	
X	96 (39.5)
Y	79 (32.5)
Z	68 (28.0)
Gender	
Woman	187 (77.0)
Man	53 (21.8)
Nonbinary	2 (0.8)
Prefer not to answer	1 (0.4)
Year in program	
Year 1	104 (42.8)
Year 2	65 (26.7)
Year 3	36 (14.8)
Year 4	17 (7.0)
Year 5	21 (8.6)
Program	
Family medicine	91 (37.4)
Surgery (general and specialties)	36 (14.8)
Pediatrics (general and specialties)	33 (13.6)
Internal medicine (general and specialties)	16 (6.6)
Anesthesia	11 (4.5)
Psychiatry	10 (4.1)
Radiology	10 (4.1)
Emergency medicine	8 (3.3)
Other direct entry programs (eg, neurology, pathology, physiatry)	28 (11.5)

Note: In Canada, the family medicine residency program is 2 years plus the option to complete a third “enhanced skills” year. All other residency programs are 5 years.

TABLE 2
Means, Standard Deviations, and Intercorrelations of Study Variables (N=243)

	Autonomy GCO	Control GCO	Impersonal GCO	Aggregated Burnout
Autonomy GCO	0.91			
Control GCO	-0.19 ^a	0.88		
Impersonal GCO	-0.47 ^a	0.46 ^a	0.87	
Aggregated burnout	-0.41 ^a	0.37 ^a	0.49 ^a	0.88
Mean	5.16	4.38	2.26	40.32
SD	0.90	1.04	0.93	7.36

^a $P < .001$.

Abbreviation: GCO, general causality orientation.

Note: Cronbach alpha values along the diagonal.

promotes anxiety and helpless ways of coping.³² While scores for *autonomy* and *control* were similar and higher than *impersonal* (TABLE 2), all GCOs can be primed and affect behavior and well-being, even if that GCO is, itself, relatively weak.³³ Thus, a lower *impersonal* score should not be overlooked.

We further observed that burnout did not differ by gender, but did by year, with first years scoring lowest and third years scoring highest. This could be due to increasing demands and prolonged exposure to challenging work environments. The third year—at least in Canada—also represents a stressful transition

when residents are working hard while competing for limited spots in their desired subspecialty. Burnout scores not differing by specialty suggests that it is prevalent across all GME programs. These findings align with prior studies,³⁴⁻³⁶ reinforcing the urgent need to address burnout in a systematic way.

Limitations

This study is cross-sectional, correlational, and employs self-report scales. Causal conclusions are thus not possible, and there is potential for response bias. The research also occurred in only 2 Canadian provinces, with a relatively low sample size and response rate, and men were underrepresented relatively to the study population. Finally, it is not uncommon for GCOs to intercorrelate, as in this study: a resident could feel pressured by the environment (controlled) and also powerless to influence desired outcomes (impersonal), or see opportunities for choices and engagement regardless of the situation at hand (autonomy).¹⁴ Nonetheless, both larger-scale and longitudinal studies are suggested to help confirm the generalizability, representativeness, and stability of our findings.

Conclusions

This study found that when residents' self-determination (*autonomy* causality orientation) was higher at work, it was associated with lower burnout. Conversely, when residents' self-determination was lower or missing altogether (*control* and *impersonal* causality orientations), it was associated with higher burnout.

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Funding: The authors report no external funding source for this study.

Conflict of interest: The authors declare they have no competing interests.

The authors would like to thank Professor Richard M. Ryan, PhD, for his contributions to this manuscript.

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Received June 10, 2024; revisions received October 31, 2024, and December 17, 2024; accepted December 19, 2024.