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

Adam Neufeld[1], Greg Malin[2], Oksana Babenko[3], Cesar Orsini[4]

Author information:

1. Adam Neufeld, MSc, MD, CCFP (ID)
   Department of Family Medicine, Cumming School of Medicine, University of Calgary, 3330 Hospital Drive NW, Calgary, AB, Canada, T2N 4N1

2. Greg Malin, MD, PhD (ID)
   Department of Family Medicine, University of Saskatchewan, 311 Fairlight Dr, Saskatoon, SK, Canada, S7M 3Y5

3. Oksana Babenko, PhD (ID)
   Department of Family Medicine, Medical Education Research, University of Alberta, Suite 6-10, University Terrace, 8303 112 St., Edmonton, Alberta, Canada, T6G 2T4

4. Cesar Orsini, BDS, MEd, SFHEA, RETF, DHPE (ID)
   Department of Medical Education, Norwich Medical School, Faculty of Medicine and Health Sciences, University of East Anglia, Norwich, UK, NR4 7TJ.

Correspondence: Adam Neufeld: adam.neufeld@ucalgary.ca | Telephone: 306-250-8586

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Abstract

Background: Burnout continues to plague graduate medical education, but 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 (SDT), 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, behaviour, and well-being outcomes. **Objective:** This study therefore investigates 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 two scales—the Causality Orientations at Work Scale (COWS) and Oldenburg Burnout Inventory (OLBI)—were sent in 2023 to a sample of Canadian residents across three institutions. Correlation and multiple regression analyses were performed, controlling for significant demographic factors. **Results:** A total of 243/1,200 residents (20.2%) completed the survey. The three general causality orientations accounted for 31.5% of the variance in resident burnout, *autonomy* correlating negatively (B = -.24, p < .001, *CI*, -.37 to -.11) and *control* (B = .20, p = .003, *CI*, .07 to .33) and *impersonal* (B = .28, p < .001, *CI*, .13 to .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 resources[1]—affects over 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;[4,5,6] 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 of 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 (SDT),[13] represent a key personal resource that influences how people orient to their environment and regulate their behaviour. 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, [19,20,21] 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 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 both personal resources and workplace demands.

Method

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 was sent in October 2023 and was open for 8 weeks with one reminder. It contained questions about gender, medical program and year of training, followed by 2 scales. A random prize draw for a $50 Starbucks gift card was offered as an incentive (optional).

Measures

Self-determination. The Causality Orientations at Work Scale (COWS) measures the strength of the three 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, impersonal. Mean scores were computed for each subscale, higher scores meaning a stronger workplace orientation.

Burnout. The Oldenburg Burnout Inventory (OLBI) is a 16-item scale measuring occupational burnout. It has two subscales[24]—*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 ANOVA. As each GCO is said to co-exist within an individual (i.e., 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.

IRB statement

Approval was obtained by the Research Ethics Board at the Universities of X (#3245), Y and Z (#23-0469).

Results

In total, 291/1,200 residents (24.3%) participated in the survey. However, 48 (16.4%) were excluded for being incomplete, leaving 243 (20.2% response rate; Table 1). Men and women were relatively under- and over-represented in this study, based on local institutional

data, and the published national averages (approx. 45% and 55%, respectively).[26] The sample size in this study was considered sufficient, based on commonly used heuristics.[27]

(Insert Table 1 near here)

The Cronbach alphas for the GCO and burnout variables ranged from .79 to .91 (see Table 2), indicating good reliability. Two participants identified as non-binary, 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) = .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 least burnout (M = 2.41, SD = .42) and differed from third-year residents (M = 2.70, SD = .44) who scored the highest (*MD* = -.63, *SE* = .20, p = .017).

(Insert Table 2 near here)

Next, burnout was regressed onto the three GCOs, controlling for year. The overall model was significant, R^2 = .315, F (4, 197) = 22.66, p < .001. *Autonomy* was associated with lower burnout (*B* = -.24, p < .001, *CI*, -.37 to -.11); and *control* (*B* = .20, p = .003, *CI*, .07 to .33) and *impersonal* (*B* = .28, p < .001, *CI*, .13 to .42) were associated with higher burnout. Year was not associated with burnout overall (*B* = .09, p = .12, *CI*, -.02 to .16).

Discussion

In this study, GCOs accounted for 32% of the variance in resident burnout, *autonomy* correlating negatively and *control* and *impersonal*, positively. This pattern aligns with other SDT and education studies[28,29,30,31] 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 behaviour[32]) 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 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 behaviour and well-being, even if that GCO is, itself, relatively weak.[33(p 234)] 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,[34,35,36] 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 two Canadian provinces, with a relatively low sample size and response rate, and men were under-represented relatively to the study population. Finally, it is not

uncommon for GCOs to correlate, as they did 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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Abbreviations

ACGME – Accreditation Council of Graduate Medical Education

COWS – Causality Orientations at Work Scale

GCO – general causality orientation

GME – graduate medical education

OLBI – Oldenburg Burnout Inventory

PLOC – perceived locus of causality

SDT – self-determination theory

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Table 1. Participant characteristics (*n* = 243)

		n (%)
University	X	96 (39.5)
	Y	79 (32.5)
	Z	68 (28.0)
Gender	Woman	187 (77.0)
	Man	53 (21.8)
	Non-binary	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 (e.g., neurology, pathology, physiatry)	28 (11.5)

Note: in Canada, the Family Medicine residency program is two years plus the option to complete a third "enhanced skills" year. All other residency programs are five years.

Table 2. Means, standard deviations, and intercorrelations of study variables (*n* = 243)

	Aut	Con	Imp	Burn
1. Aut	(.91)			
2. Con	-.19***	(.88)		
3. Imp	-.47***	.46***	(.87)	
4. Burn	-.41***	.37***	.49***	(.88)
Mean	5.16	4.38	2.26	40.32
Std. Dev.	.90	1.04	.93	7.36

Aut, *autonomy* general causality orientation; Con, *control* general causality orientation; Imp, *impersonal* general causality orientation; Burn, aggregated burnout. Cronbach alpha values along the diagonal.

*** $p < .001$.

Supplemental Material – Survey

1. What residency program are you currently in?
    a. Family Medicine (incl. Enhanced Skills and Public Health)
    b. Emergency medicine
    c. Internal medicine (incl. specialties)
    d. Surgery (incl. general and specialties)
    e. Pediatrics (incl. specialties)
    f. Anesthesia
    g. Psychiatry
    h. Radiology (incl. specialties)
    i. Other direct entry program (e.g., Neurology, Physiatry, Pathology)
2. What year of residency training are you currently in?
    a. R1
    b. R2
    c. R3 / Enhanced Skills
    d. R4
    e. R5
3. How do you identify?
    a. Man
    b. Woman
    c. Non-binary/other
    d. Prefer not to answer

These items pertain to a series of hypothetical sketches. Each sketch describes an incident and lists three ways of responding to it. Please read each sketch, imagine yourself in that situation, and then consider each of the possible responses. Think of each response option in terms of how likely it is that you would respond that way. We all respond in a variety of ways to situations, and probably most or all responses are at least slightly likely for you.

If it is very unlikely that you would respond the way described in a given response, you should indicate answer 1 or 2. If it is moderately likely, you would select a number in the mid-range, and if it is very likely that you would respond as described, you would indicate answer 6 or 7.

1	2	3	4	5	6	7
Very Unlikely			Moderately Likely			Very Likely

1. Imagine: you are asked to participate in a new work-project that you are unfamiliar with. How likely is it that you think/feel:
    A. Think it will be interesting to try something new
    B. Feel that I have to do it to satisfy my preceptor
    C. Feel that usually I don't like new things, so why should I try?

2. Imagine: Your preceptor has informed you that you should set goals for your work. You will probably:

A. Set your own challenging goals
B. Feel pressured to set yourself goals
C. Not want to set goals because it is not certain you will achieve them

3. Imagine: Your preceptor has informed you about the use of new procedures at work that can improve performance. The first thing you think is:

A. This will be interesting and important for me to try
B. I will feel pressure within me to do as the preceptor says
C. It will probably be futile for me to do it

4. Imagine: Your preceptor suggests new routines to improve work performance. You will probably think/feel:

A. It will be important for me to try this to see if it improves my work
B. I have to do this to satisfy my preceptor
C. I will be afraid I won't be able to manage the tasks

5. Imagine: Your work has not been performed to its usual standard. To do something about this, you will probably:

A. Find out where the problem lies so you can set yourself new goals
B. Go to your preceptor so he/she can decide what you should do
C. Ignore the problem, as it is difficult to do something about work performance

6. Imagine: You are in your preceptor's office, and you discover that there is something he/she is not satisfied with regarding your work. Your first reaction will probably be:

A. I want to talk with my preceptor to figure out what I can do to carry out my job in the best way possible
B. I will get a bad consequence and feel that I have to improve
C. To feel that it is hard to do something about this; what has happened has happened

7. Imagine: Your preceptor wants you to be more self-driven and independent in your job. The first thing you think will probably be:

A. This will be important for me to try, to see if it works
B. Feel pressure to do as my preceptor says
C. It is hard to do something about things like independence, I am who I am

8. Imagine: Your preceptor has asked you to do something about your interest in work, which has been a bit low lately. You will probably think/feel:

A. I want to talk to my preceptor to see if we can find a good solution
B. Feel pressured to do something so my preceptor is satisfied
C. Think that to be honest, I cannot really change my basic interest in work

9. Imagine: Your preceptor has asked you to take a course to strengthen your work competence. You will probably think/feel:

A. Think that this will be interesting and exciting
B. Feel I have to do it to satisfy my preceptor
C. Feel that I have a certain competence, but there is not much I can do to change it

10. Imagine: Your preceptor has suggested that you work with a more experienced employee to increase your job skills. You will probably think/feel:

A. Think that this will be important for me
B. Feel pressured to do it to keep my work tasks and job
C. Think, to be honest, I cannot change my skill level

11. Imagine: Your preceptor has asked you to cooperate more with your colleagues at work. You will probably think/feel/do:

A. Find out who I should collaborate with and contact them
B. Feel pressure to cooperate on something I prefer to do alone
C. Feel that, frankly, I cannot do much to change my social attitude

Below you find a series of statements with which you may agree or disagree. Using the scale below, please indicate the degree of your agreement by selecting the number that corresponds with each statement.

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

1. I always find new and interesting aspects in my work
2. There are days when I feel tired before I arrive at work
3. It happens more and more often that I talk about my work in a negative way
4. After work, I tend to need more time than in the past in order to relax and feel better
5. I can tolerate the pressure of my work very well
6. Lately, I tend to think less at work and do my job almost mechanically
7. I find my work to be a positive challenge
8. During my work, I often feel emotionally drained
9. Over time, one can become disconnected from this type of work
10. After working, I have enough energy for my leisure activities
11. Sometimes I feel sickened by my work tasks
12. After my work, I usually feel worn out and weary
13. This is the only type of work that I can imagine myself doing
14. Usually, I can manage the amount of my work well
15. I feel more and more engaged in my work
16. When I work, I usually feel energized