Self-Efficacy and Genetic Counseling Clinical Supervisor Power Dynamics

Seth Stafki MS, Patricia McCarthy-Veach PhD, Bonnie LeRoy MS CGC, Ian M. MacFarlane PhD

Department of Genetics, Cell Biology and Development, University of Minnesota

UNIVERSITY OF MINNESOTA
Driven to Discover®

Introduction

Self-efficacy is a predictor of actual skill levels for performing specific tasks.[1] Four factors identified in early theory are empirically connected to self-efficacy: performance accomplishments, vicarious experience, verbal persuasion, and emotional arousal. These factors overlap with interactions students would expect to have with clinical supervisors.
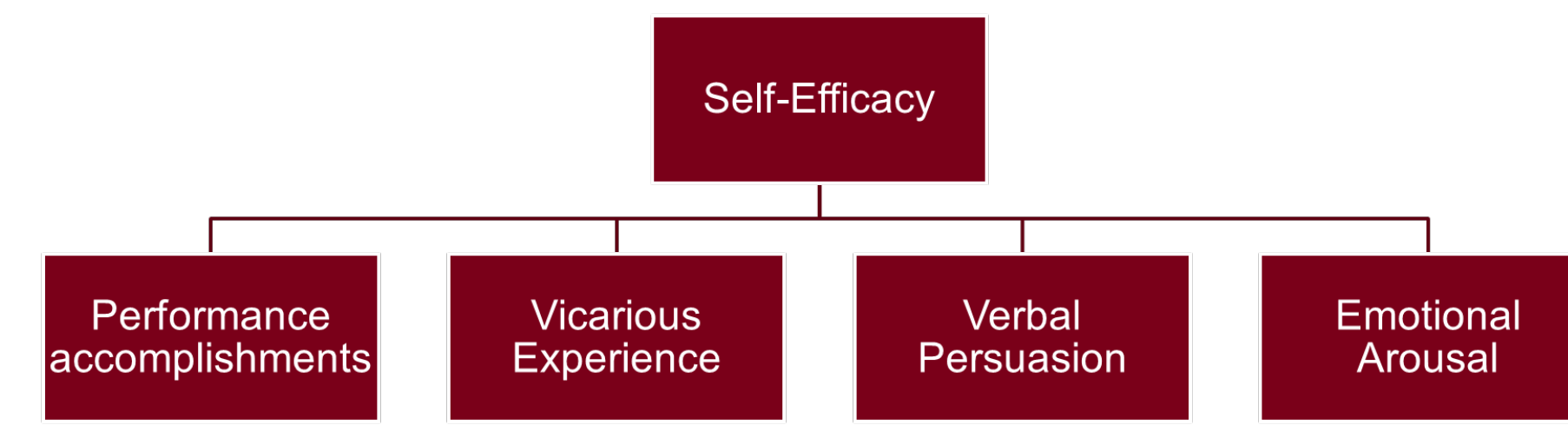
Research Questions:
- Is genetic counseling student self-efficacy impacted by the power dynamics inherit in their relationship with their supervisor in clinical settings?
- What role does anxiety play in the relationship between power dynamics and student self-efficacy?

Method

Participants
- Students enrolled in ACGC accredited programs in North America in the fall of 2020 (n = 118)
- According to 2019-2020 ACGC Annual Report (ACGC, 2020), there were 936 eligible students in the fall of 2020 (usable response rate = 12.6%)

Instruments & Procedures
- A survey was disseminated using Qualtrics Survey Software, composed of a small series of demographic questions, and three published inventories:
  - Genetic Counseling Self-Efficacy Scale (GCSES)[3,4]
  - Power Dynamics in Supervision Scale (PDSS)[2]
  - State-Trait Anxiety Inventory – Trait Subscale (STAI.T)[7]
- The inventories were presented in a counterbalanced random order.
- Data collection lasted ~1 month.

Data Analysis
- MANOVA confirmed there were no order effects (p = .17).
- Independent samples t-tests to test observed GCSES subscale scores against a previously published sample of genetic counseling students.
- Hierarchical linear regression models were generated for overall GCSES score as well as each of its subscales using the following stepwise procedure:
  1. PDSS only
  2. STAI.T results added
  3. Total number of rotations completed added
  4. Racial identity added
 5. Number of cases in last rotation added

Results

Table 1. Descriptive Statistics for Scales and Subscales for the Current Study and a Recent Study Reporting GCSES Scores for 2nd Year Genetic Counseling Students.

| Variable | Current Sample | | | | Caldwell et al. (2018b) (n=168) | | Comparison of 2nd Years | |
| | All Students (n=118) | | 2nd Year Students (n=81) | | | | | |
	M	SD	M	SD	M	SD	p	d
Full GCSES	64.3	25.3	75.7	17.32	--	--	--	--
Complex Skills	57.1	26.9	67.1	19.2	71.1	14.8	.07	-0.23
Communication Skills	66.3	27.4	77.1	18.4	80.5	11.9	.08	-0.22
Genetic Testing	59.9	22.8	73.0	19.2	77.9	11.1	.01	-0.32
Basic Psychosocial Skills	68.8	27.7	76.8	18.3	78.3	14.5	.48	-0.09
Genetic Counseling Process	70.3	21.1	83.6	18.3	87.3	9.5	.04	-0.27
Information Gathering	64.7	24.5	85.6	16.4	88.9	9.5	.05	-0.26
STAI.T	42.6	9.8	40.8	9.0	--	--	--	--
PDSS	21.9	2.6	--	--	--	--	--	--

Note. STAI.T = State-Trait Anxiety Inventory – Trait Subscale; GCSES = Genetic Counseling Self-Efficacy Scale; PDSS = Power Dynamics in Supervision Scale

Figure 1. Summary of hierarchical regression model results for total GCSES and each of its subscales (maroon boxes). Predictors in yellow were significant in the final model. Predictors in grey were significant in early models but not the final model. Trait anxiety scores and racial identity were not significant predictors in any model and thus not included in the figure. In all models, more rotations completed, more cases in the last rotation, and more perceived student power in the supervisory relationship predicted higher levels of self-efficacy.
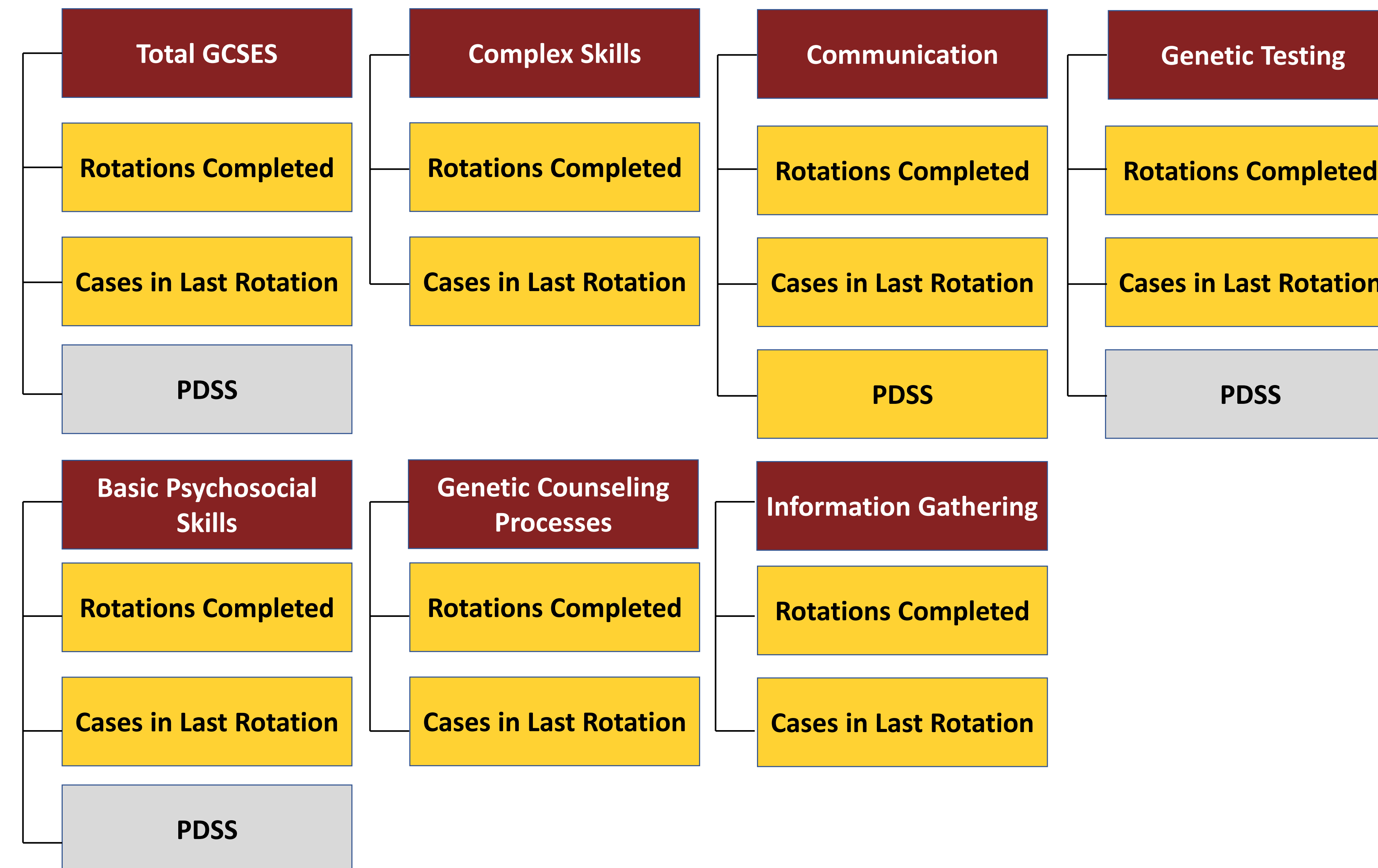
Discussion

Findings
- Despite significant disruption to the typical training experience of these students due to COVID-19, the second-year participants' self-efficacy scores were comparable to those published pre-pandemic. This suggests the shifts to distance learning and telemedicine may have had limited impact on training outcomes. Other indicators (e.g., ABGC Certification Exam pass rates) should also be explored as part of the assessment of the pandemic's effects.
- Power dynamics appear to be predictive of several facets of genetic counseling self-efficacy. Once experience variables were entered into the model, however, power dynamics was no longer significant except for Communication Skills. The predictive nature of experience is consistent with previous studies[5]. Qualitative investigations of how power impacts these skills may reveal what specifically is driving these relationships.
- The results suggest access to clinical experiences is a key to development of self-efficacy. While we found a positive effect, other research has indicated a plateau affect around 80 cases[6]. Continued research to explore the most effective and resource efficient ways to develop self-efficacy are needed.
- Trait anxiety was not a significant predictor of genetic counseling students' self-efficacy, which is not consistent with self-efficacy theory. Given previous findings that managing anxiety is a major obstacle during fieldwork training for some students[11], future studies should continue to explore this dynamic.

Limitations
- There are likely additional factors influencing power dynamics and self-efficacy not captured in this study.
- While there is evidence linking self-efficacy to performance[9,10], it is still a proxy and is unclear how accurately participants' self-efficacy perceptions reflect their actual skills.
- Number of rotations and number of cases in the most recent rotation are fairly crude measures of fieldwork experience, especially given the length of rotations varies widely by program. Future research should attempt to assess experience in a more precise manner (e.g., number of completed cases, total weeks spent in rotations).

Recommendations
- Longitudinal data over the course of a training year would be highly beneficial to track the development of self-efficacy as well as the shifts in power dynamics as students get more experience.
- Connecting power dynamics to behaviors associated with the REM-S[8] would deepen our understanding of how power manifests in genetic counseling supervision.

References

1. Bandura A. (1977). Self-efficacy: Toward a unifying theory of behavior change. *Psych. Review*. 84: 191–215.
2. Cook R. (2018) Supervisee perception of power in clinical supervision: The Power Dynamics in Supervision Scale. *Training and Ed. in Prof. Psych*. 12(3): 188–195
3. Caldwell S., Wusik K, He H, Geoffrey Y, Atzinger C. (2018a) Development and Validation of the Genetic Counseling Self-Efficacy Scale (GCSES). Journal of Genetic Counseling. 27: 1248–1257. doi: 10.1007/s10897-018-0249-1
4. Caldwell S., Wusik K, He H, Geoffrey Y, Atzinger C. (2018b) The Relationship Between the Supervisory Working Alliance and Student Self-Efficacy in Genetic Counseling Training. Journal of Genetic Counseling. 27: 1506–1514. doi: 10.1007/s10897-018-0263-3.
5. Keller H., Wusik K, He H, Yager G, Atzinger C. (2019) Further validation of the Genetic Counseling Self-Efficacy Scale (GCSES): Its relationship with personality characteristics. Journal of Genetic Counseling. 29(5):748-758. doi: 10.1002/jgc4.1202.
6. Owens-Thomas E, Wusik K, He H, Yager G, Atzinger CL. (2019) The relationship between genetic counseling student self-efficacy and clinical training. Journal of Genetic Counseling. 28(4): 767–778. doi: 10.1002/jgc4.1115.
7. Spielberger, C.D., Gorsuch, R.L., Lushene, R.E., 1970. Manual for the State-Trait Anxiety Inventory.
8. Suguitan M, McCarthy-Veach P, LeRoy B, Wherley C, Redlinger-Grosse K. (2019) Genetic counseling supervisor strategies: An elaboration of the Reciprocal-Engagement Model of Supervision. Journal of Genetic Counseling. 28(3): 602-615. doi: 10.1002/jgc4.1057.
9. Mothabeng, D. J. (2015). The relationship between the self-efficacy, academic performance and clinical performance. Physiotherapy, 101, e1051. https://doi.org/10.1016/j.physio.2015.03.1929
10. Opiac, D. A. (2003). The relationship between self-efficacy and student physician assistant clinical performance. Journal of Allied Health, 32, 158–166.
11. MacFarlane, I. M., McCarthy Veach, P, Mayer, J. E., Meister, D. J., & LeRoy, B. S. (2016). Supervision experiences of genetic counseling students with differing levels of trait anxiety: A qualitative investigation. Journal of Genetic Counseling, 25, 742-766. http://dx.doi.org/10.1007/s10897-016-9953-x