

## Two Problems, Not One: Researcher Wellbeing and Publication Productivity Among Student and Early-Career Researchers

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### Abstract

Unpublished research is often blamed on researchers' anxiety and low confidence, but this assumption is rarely tested against actual publication outcomes. To examine process barriers, institutional support, and psychological strain among early-career researchers, and to test whether these factors predict published articles and unpublished projects. A cross-sectional survey of 291 researchers in Philippine higher education (86.3% undergraduates; 79.7% health and medical sciences) measured 22 phase-specific challenges, institutional and collegial support, publish-or-perish pressure, and six psychological factors. Analyses included correlations, Welch t-tests, and multiple regression. Most respondents (57.7%) had never published, and 61.9% had at least one stalled project. The highest-rated barriers were logistical and financial: unexpected disruptions, prolonged data collection, ethics approval, recruitment, and publication fees. Publication anxiety ( $M = 3.31/5$ ) was the most prominent psychological factor. Psychological barriers and process challenges predicted each other ( $\beta = .50$  and  $.44$ ), and institutional support predicted lower strain ( $\beta = -.15$ ). Undergraduates reported more publish-or-perish pressure than professionals ( $d = 0.64$ ). However, no combination of challenges, support, or psychological factors predicted articles published ( $R^2 = .04$ ,  $p = .443$ ), and self-efficacy was unrelated to output ( $r = .03$ ). Only years in research predicted unpublished projects ( $\beta = .18$ ,  $p = .007$ ). Publication-related strain is real and bound up with



perceived difficulty, but it is largely decoupled from what researchers publish. The publication gap reflects two problems—researcher well-being and research productivity—that need separate interventions.

**Keywords:** publication gap, publication anxiety, self-efficacy, publish-or-perish, institutional support, early-career researchers, Philippine higher education

## Introduction

Peer-reviewed publication is the principal currency of academic life, shaping reputation, promotion, and funding. The expectation to publish now reaches past senior faculty to graduate and undergraduate student-researchers (De Rond & Miller, 2005; Hyland, 2015). Yet much research that is started never reaches print. Across disciplines, many completed studies never reach full publication, a phenomenon often called the file-drawer problem or publication gap (Franco et al., 2014; Scherer et al., 2018; Song et al., 2010).

In Philippine higher education, research output has become a benchmark of institutional quality, reinforced by accreditation, rankings, and national research agendas. Support needed to turn research into publications—funding, ethics review, mentorship, and protected time—has not always kept pace (Salazar-Clemeña & Almonte-Acosta, 2007). In this setting, unpublished work is often read as a sign that the researcher lacked motivation or confidence.

Three explanations account for the publication gap; first, projects can stall at any phase of the research-to-publication pathway. Ethics approval and literature synthesis slow early design work. Recruitment difficulties and timeline overruns often delay data collection (Sully et al., 2013). At submission, article processing charges (APCs) add a financial barrier that hits researchers without grants hardest (Vervoort et al., 2021). Scholars often blame second-language writing, though they caution that framing, argument, and mentorship matter as much as language (Flowerdew, 1999; Hyland, 2016). Second, models of research productivity treat resources, protected time, mentorship, and research culture as joint determinants of output alongside individual traits (Bland et al., 2005). Where formal support is thin, researchers rely more on collegial networks. The last is anxiety about writing and evaluation, a long-recognized individual difference (Daly & Miller, 1975), and peer review adds the threat of rejection. Self-efficacy, defined as belief in one's capacity to carry out the actions a goal requires, robustly predicts effort, persistence, and performance (Bandura, 1997; Pajares, 1996; Schunk & DiBenedetto, 2020). Publish-or-perish pressure can spur output but also harms well-being (Miller et al., 2011), and interventions aimed at raising publication rates have produced mixed results (McGrail et al., 2006).

These three explanations are usually studied separately, and their link to actual publication outcomes is more often assumed than tested. Most evidence also comes from faculty in Western, research-intensive settings and treats published output as the only outcome, ignoring projects that exist but never appear in print. Evidence from predominantly undergraduate, health-sciences populations in developing-country settings is especially scarce.

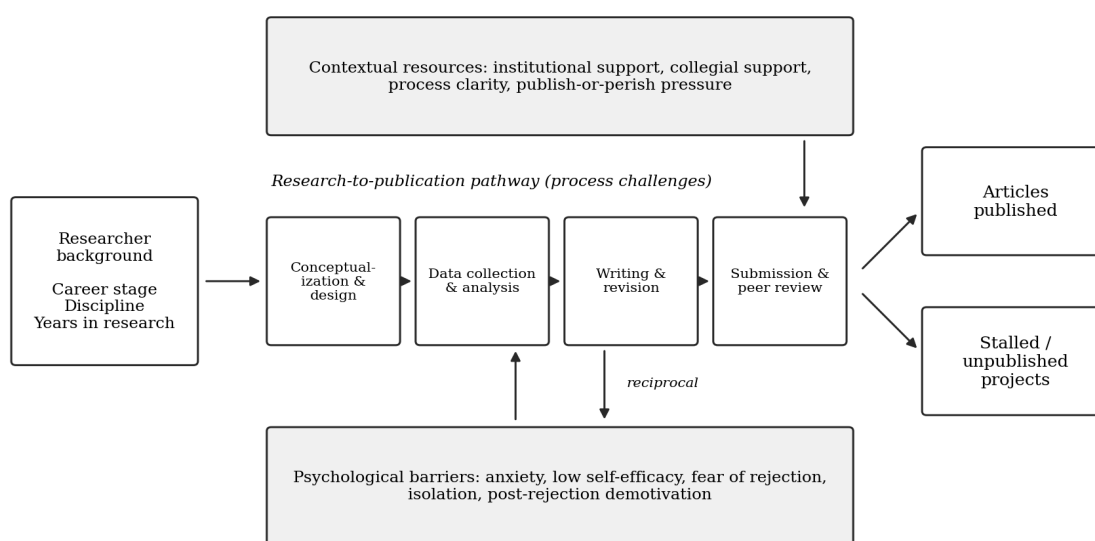
To our knowledge, this is the first study to test whether publication-related psychological strain predicts both published and unpublished output in a predominantly undergraduate research population and to model process, institutional, and psychological explanations of the publication gap together.



## Theoretical framework

Two theories frame the study. Bandura's (1977, 1997) self-efficacy theory predicts that researchers who doubt their ability will submit less, recover less readily from rejection, and accumulate more stalled projects. Lazarus and Folkman's (1984) transactional model of stress treats publication challenges as demands appraised against available resources. When demands exceed resources, strain follows, and heightened strain makes later demands look larger. Together, the theories predict a two-way link between process challenges and psychological strain and a path from both to publication output. Figure 1 summarizes the conceptual model.

**Figure 1:** Conceptual Model of the Research-to-Publication Pathway



## Hypotheses

This study measured process challenges, institutional support, and psychological factors in one sample of early-career researchers. It then tested these factors against two outcomes: articles published and projects left unpublished. It addressed four questions: which barriers are rated most challenging; how researchers experience support and psychological strain; how challenges, support, and strain relate; and whether any of them predict publication outcomes. Five hypotheses were tested:

- **H1.** Psychological barriers are positively associated with process challenges.
- **H2.** Process challenges and publish-or-perish pressure predict greater psychological barriers; institutional support predicts fewer.
- **H3.** Pressure, support, and challenges differ by career stage.
- **H4.** Self-efficacy is positively associated with articles published.
- **H5.** Challenges, support, and psychological factors predict articles published and unpublished projects.

## Methods

### Design and participants

This study used a quantitative, cross-sectional survey design (Creswell & Creswell, 2018), forming the quantitative component of a larger mixed-methods study of the research-to-publication process. The study included 291 researchers in Philippine higher education, recruited through voluntary, non-probability purposive and snowball sampling via academic networks, institutional mailing lists, and social media. Eligibility required current involvement in research at a degree-granting institution.

### Instrument

Researchers collected data using the *Publication Gap Survey*, a researcher-made, 37-item questionnaire. It recorded career stage, discipline, years of research experience, peer-reviewed articles published, and projects that did not result in publication in the past three years. Publication outcomes were recorded in order; category midpoints were used where interval values were needed.

The Process Challenges scale had 22 items across four phases: conceptualization and design (6), data collection and analysis (6), writing and revision (4), and submission and peer review (6). Items were rated from 1 (*not at all challenging*) to 5 (*extremely challenging*). Contextual scales measured institutional support (funding, infrastructure, workload, mentorship), collegial support (research network, collaboration), publish-or-perish pressure, and process clarity on a 1–4 agreement scale. The Psychological Barriers Scale (1–5) covered publication anxiety, doubt in one's ability to publish (reverse-scored as self-efficacy where reported), isolation, fear of rejection, difficulty re-engaging after rejection, and perceived insignificance of one's research.

Content was reviewed for relevance and clarity before administration. Internal consistency was acceptable to excellent for all scales except the two-item collegial support scale (Table 1), whose results are read with caution. Composite scales had skewness and kurtosis within  $\pm 1$  (Tabachnick & Fidell, 2019).

**Table 1.** Study Scales and Internal Consistency (N = 291)

| Scale                        | Items | Metric | Cronbach's $\alpha$ |
|------------------------------|-------|--------|---------------------|
| Overall Process Challenges   | 22    | 1–5    | .95                 |
| Conceptualization and Design | 6     | 1–5    | .90                 |
| Data Collection and Analysis | 6     | 1–5    | .87                 |
| Writing and Revision         | 4     | 1–5    | .86                 |
| Submission and Peer Review   | 6     | 1–5    | .92                 |
| Psychological Barriers       | 6     | 1–5    | .91                 |
| Institutional Support        | 4     | 1–4    | .77                 |



| Scale                      | Items | Metric | Cronbach's $\alpha$ |
|----------------------------|-------|--------|---------------------|
| Publish-or-Perish Pressure | 2     | 1–4    | .72                 |
| Collegial Support          | 2     | 1–4    | .64                 |

## Procedure and ethics

The questionnaire was administered online and took about 15 to 20 minutes. Participation was voluntary and uncompensated, and participants provided informed consent beforehand. Responses were anonymous and analyzed only in aggregate, in line with the Data Privacy Act of 2012 (Republic Act No. 10173).

## Data analysis

Descriptive statistics summarized the profile and scale scores; item means were ranked to identify the most challenging barriers. Pearson correlations estimated bivariate associations. Welch's t-tests compared undergraduates ( $n = 251$ ) with professionals ( $n = 40$ ), with Cohen's  $d$  as effect size (Cohen, 1988); a one-way ANOVA compared three discipline groups, with  $\eta^2$  as effect size. Multiple linear regression tested predictors of process challenges, psychological barriers, articles published, and unpublished projects. Significance was set at  $p < .05$  (two-tailed). Analyses were run in Python (scipy, statsmodels).

## Results

### 1. Participant profile

The sample was overwhelmingly early-career and had published little (Table 2). Research experience averaged 3.8 years ( $SD = 3.66$ ,  $Mdn = 3.0$ ;  $n = 270$ ). Most respondents (57.7%) had never published a peer-reviewed article, and 61.9% had at least one unpublished or stalled project in the past three years.

**Table 2.** Participant Profile ( $N = 291$ )

| Characteristic                                       | n   | %    |
|------------------------------------------------------|-----|------|
| <b>Career stage</b>                                  |     |      |
| Undergraduate student                                | 251 | 86.3 |
| Professional (master's or doctoral level)            | 40  | 13.7 |
| <b>Discipline</b>                                    |     |      |
| Health and Medical Sciences                          | 232 | 79.7 |
| Engineering and Technology                           | 44  | 15.1 |
| Other (natural sciences, education, business, other) | 15  | 5.2  |

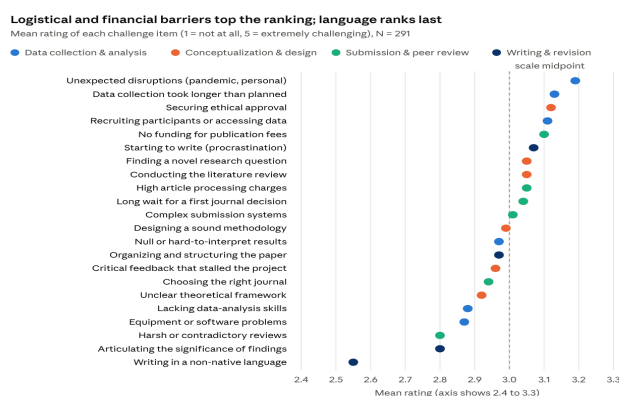


| Characteristic                             | n   | %    |
|--------------------------------------------|-----|------|
| <b>Articles published</b>                  |     |      |
| 0                                          | 168 | 57.7 |
| 1–3                                        | 89  | 30.6 |
| 4 or more                                  | 34  | 11.7 |
| <b>Unpublished projects (past 3 years)</b> |     |      |
| 0                                          | 111 | 38.1 |
| 1–2                                        | 129 | 44.3 |
| 3 or more                                  | 51  | 17.5 |

## 2. Process barriers

Challenges were moderate and spread across the pathway (overall  $M = 2.98$ ,  $SD = 0.69$ ). Data collection and analysis were rated highest ( $M = 3.03$ ,  $SD = 0.76$ ), followed closely by conceptualization and design ( $M = 3.01$ ,  $SD = 0.78$ ) and submission and peer review ( $M = 2.99$ ,  $SD = 0.84$ ); writing and revision were lowest ( $M = 2.84$ ,  $SD = 0.82$ ). At the item level, the top barriers were logistical and financial: three came from data collection, and the others were ethics approval and publication fees (Figure 2). Writing in a non-native language received the lowest rating ( $M = 2.55$ ), though its wide dispersion ( $SD = 1.03$ ) shows it remained a concern for some respondents. Exact means and standard deviations for all 22 items appear in Table 2.

**Figure 2: Mean Ratings of the 22 Process-Challenge Items, by Phase**



### 3. Support and psychological strain

Support rested more on peers than on institutions (Figure 3A). Collegial support was rated highest ( $M = 3.08$ ,  $SD = 0.58$ ) and institutional support lowest ( $M = 2.78$ ,  $SD = 0.58$ ); funding and workload were the weakest single items. Mentorship correlated with funding, infrastructure, and workload (all  $r = .51$ ), and research networks with collaboration ( $r = .46$ ).

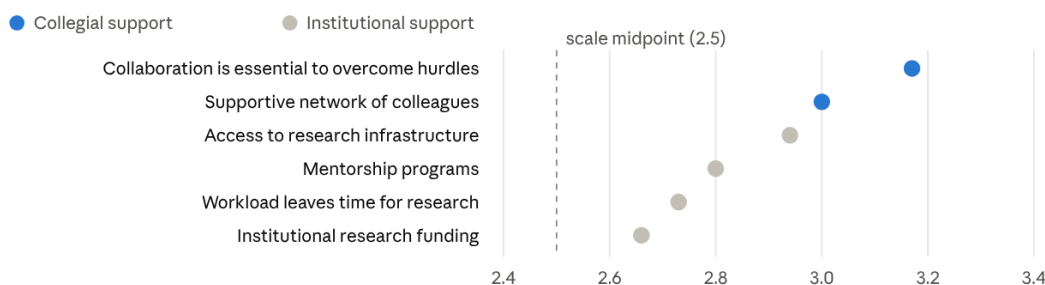
Publication anxiety ( $M = 3.31$ ) and doubt in one's ability to publish ( $M = 3.20$ ; self-efficacy  $M = 2.80$  when reverse-scored) were the most prominent psychological factors (Figure 3B); the composite was  $M = 3.02$  ( $SD = 0.80$ ). These factors formed a coherent cluster: anxiety and self-efficacy were strongly inversely related ( $r = -.70$ ), and fear of rejection and difficulty recovering after rejection were tightly linked ( $r = .77$ ), both also tied to isolation ( $r = .60$  and  $.64$ ). Publish-or-perish pressure stood apart, only weakly linked to the others ( $r = .12$  to  $.23$ ). The full correlation matrices appear in Tables 3 and 4.

**Figure 3: Mean Ratings of Support Items and Psychological Factors**

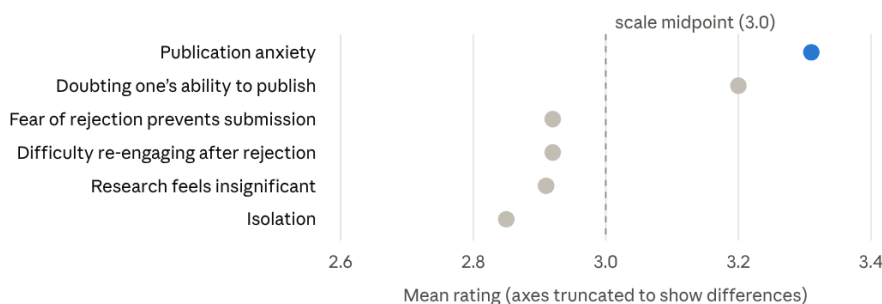
#### Support leans on peers; anxiety leads the psychological barriers

Mean item ratings,  $N = 291$ . The two panels use different response scales.

##### A. Support (1 = strongly disagree, 4 = strongly agree)



##### B. Psychological factors (1 = very low, 5 = very high)



### 4. The challenge–strain relationship

Psychological barriers correlated moderately with overall challenges ( $r = .46$ ,  $p < .001$ ). In regression, psychological barriers were the strongest predictor of challenges ( $\beta = .50$ ), supporting H1. In turn, challenges ( $\beta =$

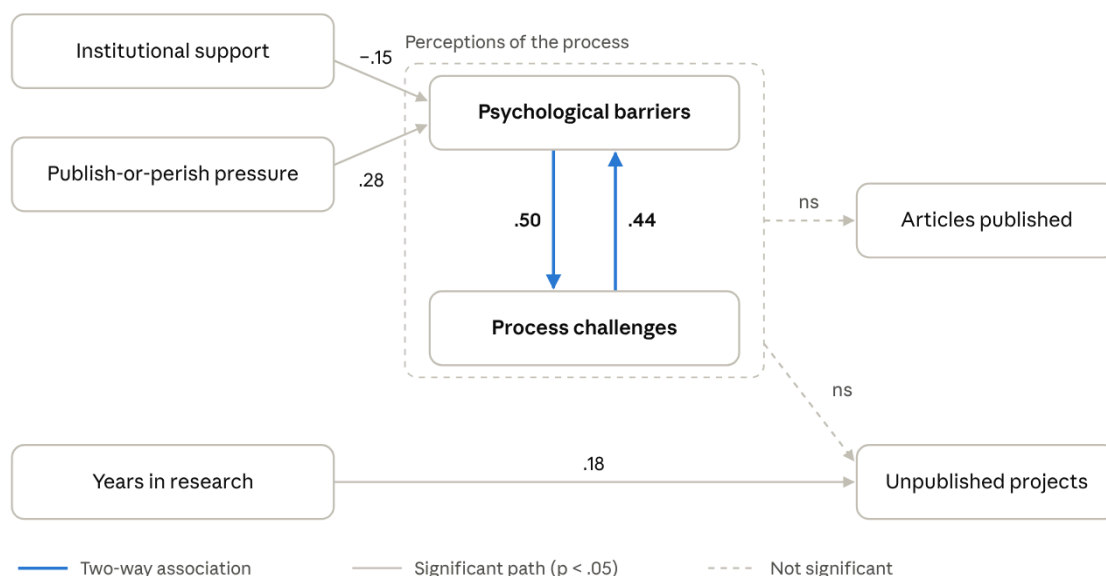


.44) and publish-or-perish pressure ( $\beta = .28$ ) predicted greater psychological barriers, while institutional support predicted fewer ( $\beta = -.15$ ), supporting H2 (Figure 4).

**Figure 4:** Paths Among Contextual Factors, Psychological Barriers, Process Challenges, and Publication Outcomes

**Strain and challenges predict each other; neither predicts output**

Standardized regression coefficients ( $\beta$ ), N = 270–291



## Group differences

Undergraduates reported more publish-or-perish pressure than professionals ( $M = 2.80$  vs.  $2.40$ ),  $t(49.5) = 3.45$ ,  $p = .001$ ,  $d = 0.64$ , partly supporting H3. No other career-stage difference reached significance, and overall challenges were nearly identical ( $p = .932$ ). Across disciplines, no challenge composite differed; engineering and technology reported higher institutional support ( $F(2, 288) = 5.63$ ,  $p = .004$ ,  $\eta^2 = .038$ ) and process clarity ( $F(2, 288) = 3.92$ ,  $p = .021$ ,  $\eta^2 = .027$ ). Full comparisons appear in Table S5.

## 5. Publication outcomes

Articles published showed small positive correlations with institutional support ( $r = .15$ ), funding ( $r = .14$ ), mentorship ( $r = .13$ ), publish-or-perish pressure ( $r = .13$ ), and years in research ( $r = .12$ ), all  $p < .05$ . Self-efficacy was unrelated to articles published ( $r = .03$ ,  $p = .617$ ), so H4 was not supported. Unpublished projects correlated only with years in research ( $r = .20$ ,  $p < .01$ ). Articles published and unpublished projects were weakly related ( $r = .11$ ,  $p = .068$ ).



In multivariate models, no combination of challenges, support, or psychological factors predicted articles published, and perceptions alone did not predict unpublished projects (Table 3). Only the model that added researcher background was significant, with years in research as its sole predictor ( $\beta = .18$ ,  $p = .007$ ; coefficients in Table S6). H5 was therefore not supported.

**Table 3.** *Regression Models Predicting Publication Outcomes*

| Model | Outcome              | Predictors                                                                 | R <sup>2</sup> | F (df)         | p    | Significant predictors |
|-------|----------------------|----------------------------------------------------------------------------|----------------|----------------|------|------------------------|
| 3a    | Articles published   | Six support items                                                          | .03            | 1.42 (6, 284)  | .208 | None                   |
| 3b    | Articles published   | Challenges, six support items, five psychological factors                  | .04            | 1.01 (12, 278) | .443 | None                   |
| 4a    | Unpublished projects | Five psychological factors                                                 | .01            | 0.59 (5, 285)  | .708 | None                   |
| 4b    | Unpublished projects | Challenges, six support items, five psychological factors                  | .03            | 0.69 (12, 278) | .760 | None                   |
| 4c    | Unpublished projects | Challenges, psychological barriers, support, pressure, career stage, years | .06            | 2.45 (7, 262)  | .019 | Years in research      |

## Discussion

This study tested a common assumption: that the publication gap is mainly a psychological problem. The findings do not support it. Early-career researchers reported real, structured strain that was bound up with perceived difficulty, yet neither strain nor difficulty explained how much they published. Only time in research explained how much work they left unpublished.

### Barriers are logistical at the top

No single phase stood out, so difficulty accumulates across the pathway rather than at one bottleneck. The highest-rated items, however, were practical: disruptions, slow data collection, ethics approval, recruitment, and publication fees. This extends evidence on recruitment and timeline overruns in clinical research (Sully et al., 2013) to student researchers. Ethics review timelines sit poorly with semester-bound student projects, and a stall at this upstream stage delays everything after it. Publication fees weigh most on those who have never published. In this study, the majority echoed concerns that APC-based publishing disadvantages researchers without grants (Vervoort et al., 2021).

Writing and language were rated comparatively low, consistent with cautions against over-attributing publication difficulty to language (Flowerdew, 1999; Hyland, 2016), and likely reflecting English-medium



instruction in Philippine health science programs. This questions the habit of investing mainly in writing workshops: they remain useful, but the heavier burdens sit earlier, in execution.

### Strain is coherent and reciprocal.

The psychological factors behaved as one system. The strong inverse link between anxiety and self-efficacy matches Bandura's (1997) account of efficacy beliefs regulating task-related anxiety. In the rejection cluster, the fear of rejection, difficulty recovering, and isolation fit the transactional model, in which evaluative threat and depleted coping resources travel together (Lazarus & Folkman, 1984). Strain and perceived challenges also predicted each other, consistent with appraisals that excess demand raises strain and heightened strain increases later demands. Institutional support predicted lower strain, suggesting that reliable resourcing may act as both a psychological buffer and a material input.

Undergraduates reported more publish-or-perish pressure than professionals ( $d = 0.64$ ). Researchers usually study this construct among faculty (De Rond & Miller, 2005; Miller et al., 2011). Among students, program requirements to publish and high-stakes expectations, without the coping resources experience brings, may drive it, making them a priority group for support.

### Strain does not predict output.

The central result is a dissociation: the variables most tightly bound to one another were the least connected to outcomes. Self-efficacy was unrelated to productivity, contrary to social cognitive theory, and no combination of perceptions predicted articles published. Three explanations are plausible. First, the outcome range was narrow; with 57.7% unpublished, there was little variance to explain, which attenuates true associations. Second, for early-career researchers, the binding constraints may be opportunity and exposure, being on a research team, having a publishable project, and time in the field rather than attitudes. That years in research was the only variable linked to both outcomes supports this. Third, the self-efficacy item may index affect more than enacted mastery, explaining its tight link to anxiety and its silence on output.

The small bivariate links between output and funding, mentorship, and institutional support still make sense: funding buys data and publication fees, and mentorship provides apprenticeship in writing and review (Bland et al., 2005). The positive link with pressure likely reflects that better-resourced, research-active settings bring both more pressure and more output, consistent with the strong correlation between support and pressure ( $r = .61$ ). None survived multivariate adjustment.

Unpublished projects rose only with years in research, suggesting cumulative exposure: the longer one is active, the more projects one starts and leaves unfinished. Their weak link with published output indicates that publishing and not publishing are distinct processes rather than opposite ends of one scale.

### Implications

What is usually discussed as one publication problem is better treated as two. The **well-being problem**, anxiety, self-doubt, and the rejection cluster deserve attention for their own sake: normalizing rejection, coaching revise-and-resubmit behavior, and structured peer feedback are reasonable responses. The **productivity problem**



calls for structural measures that the data point to directly: an expedited ethics-review track for minimal-risk student research, subsidized or waived publication fees, protected research time, and early placement of students in active, co-authored research teams.

These responses translate into concrete practice for three groups:

1. Institutions can provide step-by-step publication roadmaps and submission checklists, modeled on the clearer processes reported in Engineering and Technology.
2. Mentors and supervisors can build confidence through a series of smaller successes and place newcomers in co-authoring teams in which the technical and emotional work is shared.
3. Researchers can build slack into data-collection timelines, seek ethics-review guidance early, and keep regular writing routines.

Treating the two problems as one risks programs that make researchers feel better without changing output or that push output while ignoring strain. Theoretically, self-efficacy and stress models explain the *experience* of publishing well but not its outcomes; productivity models for this population should place exposure and opportunity at the center.

### Limitations and future research

The cross-sectional design precludes causal inference, so the two-way challenge–strain link needs longitudinal confirmation. The non-probability sample was mostly undergraduate and health-science students in one country, limiting generalizability. The narrow outcome range limited statistical power, and researchers self-reported outcomes in categories analyzed using midpoints. All measures came from one self-report instrument, which may inflate associations among perceptions, although this cannot explain the near-zero links with outcomes.

Future studies should sample more published researchers or compare career stages, model counts with ordinal or negative-binomial regression, measure opportunity directly on team membership, co-authorship, supervisor output, link responses to bibliometric records, and follow researchers over time.

### Conclusion

Among 291 early-career researchers in Philippine higher education, the path to publication is marked by moderate challenges that peak at logistical and financial chokepoints, and by psychological strain that is real, coherent, and reciprocally tied to perceived difficulty. Yet these perceptions are largely decoupled from what researchers publish; only time in research predicted unpublished work. The publication gap in this population is not primarily a psychological phenomenon. Institutions should support researcher wellbeing for its own sake and address productivity through structural measures like faster ethics review, publication-fee support, protected time, and early access to research teams.



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