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BRIEF REPORT

Practice Integration Profile Revised: Improving Item Readability and Completion

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Introduction: The Practice Integration Profile (PIP) is a reliable, valid, and broadly used measure of the integration of behavioral health (BH) into primary care. The PIP assesses operational and procedural elements that are grounded in the AHRQ Lexicon for Behavioral Health and Primary Care Integration. Prior analyses of PIP data and feedback from users suggested the measure was in need of revisions. This article describes the process used to improve readability, clarity, and pragmatic utility of the instrument. ***Method:*** Two rounds of structured cognitive interviews were conducted with clinicians in primary care settings. After each round, interview transcripts were coded by an analytic team using an iterative and consensus-driven process. Themes were identified based on codes. Themes and recommendations for revisions were reviewed and modified by committee. ***Results:*** Based on feedback and a prior factor analysis of the PIP, revisions were undertaken to: (a) eliminate redundant or overlapping items; (b) clarify the meaning of items; (c) standardize the response categories, and (d) place items in the most appropriate domains. The resulting measure has 28 items in five domains. ***Discussion:*** PIP 2.0 will need further examination to confirm its continuing use as a foundational tool for evaluating integrated care.

Public Significance Statement
This article presents a revised version of a previously validated survey that measures the extent to which primary care practices have integrated behavioral

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health care. The revised survey can be used to support practice improvement in primary care and research on such topics as the determinants of practice-level performance.

Keywords: primary care, integrated behavioral health, questionnaire design, survey methodology, delivery of health care

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The integration of behavioral health (BH) into primary care is a critical step in achieving better outcomes, lower costs, and improved clinical and patient experience (Christian et al., 2018). Measurement plays a key role in reaching these targets, as integrated care varies in implementation (Lenz et al., 2018). Validated measures of BH integration in primary care are essential for monitoring implementation progress and evaluating effectiveness. The Practice Integration Profile (PIP; Kessler et al., 2016) is the only measure of BH integration processes and structures that maps to the Agency for Health care Research and Quality Lexicon for Behavioral Health and Primary Care Integration (Peek & Council, 2013) and is empirically validated in primary care (Hitt et al., 2022).

The original Practice Integration Profile (PIP 1.0) assesses operational and procedural elements drawn from the Lexicon that are known to impact the BH care patients receive in primary care (Peek & Council, 2013). PIP 1.0 contains 30 practice-level items representing six domains of BH integration (practice workflow, clinical services, work space arrangement and infrastructure, integration methods, case identification, and patient engagement) and has demonstrated reliability and validity (Hitt et al., 2022; Macchi et al., 2016). Since its release, PIP 1.0 has been completed by more than 1,700 clinical and nonclinical respondents from 995 unique practices spanning a broad range of practice types and locations across 48 states.

Although PIP 1.0 has six domains, a confirmatory factor analysis suggested that five factors statistically underlie the 30 items (Mullin et al., 2019). We endeavored to revise PIP 1.0 to make it consistent with the five factors. The revision offered us an opportunity to reexamine individual items, instrument scoring, and the structure of presentation. A formal review of PIP clarity had never been attempted and was necessary in order to confirm that the PIP was clear and understandable (Martin et al., 2018). This brief report outlines the process used to improve PIP readability, clarity, and utility.

Method

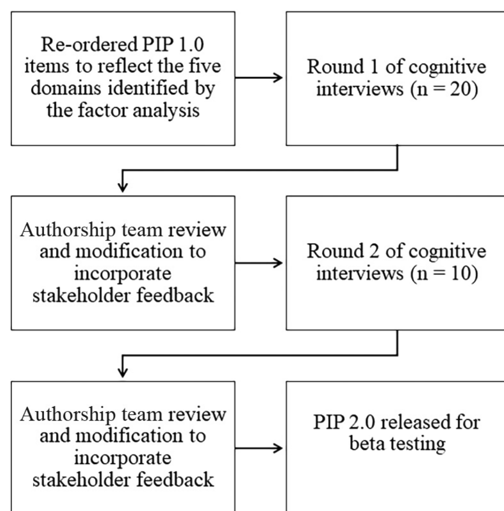
This authorship team comprised six coauthors of the original PIP plus four additional clinician-scientist collaborators with expertise in integrated BH care and scale development. Our revision process is summarized in Figure 1. We first redistributed the items to reflect the five domains identified by a 2019 factor analysis (Mullin et al., 2019). Notably, the two items in the work space domain were combined with items in the shared care and integration domain (see Figure 2). We then conducted two rounds of cognitive interviews, followed by review and modification to incorporate stakeholder feedback.

For the first round of interviews, 20 participants were recruited from the Collaborative Family Health Care Association and American Academy of Family Physicians National Research Network professional listservs because many members of these listservs work in integrated primary care settings. They were offered a gift card and summary of their PIP results. The sample was 70% female and consisted of 11 BH clinicians (psychologists, counselors, social workers, and marriage and family therapists), five BH directors or managers, three physicians, and one physician assistant. Interviews were conducted by Zoom.

One researcher read instructions, encouraged participants to comment on their thoughts and experiences while completing each item of the PIP, answered questions, and asked three standard questions about clarity and interpretation: (a) Is this item clear? What about the item was unclear? (b) What does the question mean to you? (c) What facts about your clinic led you to the answer you selected? A second researcher took notes. Interviews were recorded and transcribed.

Researchers met to create and discuss thematic codes using an iterative and consensus-driven process. Using thematic analysis and coding software (ATLAS.ti Version 8 for MacIntosh), the researchers developed a codebook based on the first four interviews and calculated Krippendorff's alpha (Krippendorff, 2004) to determine interrater

Figure 1
Summary of PIP Revision Process



Note. Revision of the original PIP entailed redistribution of items, two rounds of cognitive interviews, and authorship team review and modification. PIP = Practice Integration Profile.

reliability. Codes with alpha <.60 were discussed until the team reached consensus and a higher alpha. The remaining transcripts were each coded by two researchers with a third as arbiter. The team continued to revise codes until thematic saturation was reached, then presented the results and recommendations to coauthors for discussion and decision-making.

Drawing from the earlier factor analysis (Mullin et al., 2019), themes and recommendations from the first round of cognitive interviews, and the Lexicon (Peek & Council, 2013), each coauthor independently declared their perspective on the focus of each PIP domain and item, along with proposed rewording of items and response options. Coauthors discussed each item until consensus was reached, iterating their review as related items within the domain were adjusted.

The penultimate version of PIP 2.0 was moved to a new platform (Qualtrics software, Copyright 2021, Provo, UT) to pilot the modifications. A second round of cognitive interviews assessed whether the new items were answerable in their revised form. Participants were asked: (a) Are you able to answer the question, as asked? If no, specify the problem. (b) What does the question mean to you? (c) What facts about your clinic led you to the answer you selected? Remote interviews were conducted with 10 clinicians, seven of whom had completed the first round of cognitive interviews. This sample included two women and consisted of five PhD psychologists and five physicians. Qualitative analysis identified remaining problematic items, which were reviewed by coauthors resulting in the final PIP 2.0. The revised instrument is freely available on the PIP website (www.practiceintegrationprofile.com). This study was approved by the Arizona State University institutional review board.

Results

Seven themes were identified from the first round of cognitive interviews: inconsistent use of terms, misalignment between questions and responses, variable and unrealistic scoring criteria, item redundancy, compound questions, items not central to integrated care, and general survey format. The second round of interviews highlighted six items that remained unclear and four items that generated conceptual confusion for at least half of the participants. Coauthors reviewed each suggestion and made revisions that did not alter the intended meaning of the item or contradict the guidance found in the Lexicon.

In addition to expanding the instructions, improving typography, and providing more examples, items were revised to (a) eliminate redundant or overlapping items; (b) clarify wording that was ambiguous, confusing, or overly broad; (c) standardize the response categories; and (d) place items in the most useful and appropriate domains. The resulting measure has 28 items in five domains: patient workflow, clinical services, work space and integration methods, patient identification, and patient engagement.

Discussion

PIP 1.0 is a robust and validated measure of BH integration, broadly used to evaluate integration efforts (Hitt et al., 2022). In this study, we used cognitive interviews to inform updates to the PIP with the goal of increasing clarity and improving consistency with empirical evidence of factor structure. We adjusted the domains and items to reflect trends in the emerging field of integrated care, which can benefit from a clear and coherent measurement system.

As the integration of BH and primary care services advances in the United States, clinical

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Figure 2

Practice Integration Profile 1.0 and 2.0 Comparison and Types of Modifications

Practice Integration Profile 1.0		Practice Integration Profile 2.0		
WF	Workflow	**WF**	Patient Workflow	How Modified
1	...we use a standard protocol to identify, assess, treat, and follow up patients who need or can benefit from integrated Behavioral Health (BH).			A
2	...we use registry tracking to identify and follow patients with identified BH issues.			A
3	...we coordinate clinical care and or provide bidirectional communication for patients with BH issues who would benefit from specialty services (not primary care).	4	... we actively **communicate to and from external mental health clinicians** (non-substance abuse) for referred patients.	B,C
4	...we connect patients with BH issues to non-clinical community resources.	3	... we actively arrange for **non-clinical community resources** when needed.	B,C
5	...we provide referral assistance to connect patients to specialty mental health resources.	1	... we actively arrange for **external mental health services** (nonsubstance abuse) when needed.	B,C
6	...we use a standard approach for documenting patients' self-management goals.	6	... we **share patients' goals among all the relevant team members**.	B,C
		2	... we actively arrange for **external substance use disorder services** when needed.	B,C
		5	... we actively **communicate to and from external substance use disorder clinicians** for referred patients.	B,C
CS	Clinical Services	**CS**	Clinical Services	How Modified
1	...we have clinicians available on site who provide non-crisis focused BH services.	1	...we provide behavioral (nonpharmacologic) care for **patients with behavioral health needs.**	B,C
2	...we have clinicians available on site to see patients in behavioral crisis.	4	...we provide behavioral (nonpharmacologic) care for **patients in crisis or who have urgent behavioral health needs.**	B,C
3	...we have BH clinicians who can see seriously mentally ill and substance-dependent patients.	2	...we provide behavioral (nonpharmacologic) care for **patients with Serious Mental Illness (SMI).**	B,C
4	...we offer behavioral interventions for patients with chronic/complex medical illnesses.	5	...we provide behavioral (nonpharmacologic) care for **patients with chronic medical conditions or risk factors.**	B,C
5	...we offer complex or specialized behavioral health therapies.	6	...we provide **specialized behavioral (non-pharmacologic) therapies** for patients with behavioral health needs.	B,C
6	...we offer evidence-based substance abuse interventions.	3	...we provide behavioral (nonpharmacologic) care for **patients with substance use disorder.**	B,C
7	...we offer prescription medications for routine mental health and substance abuse diagnoses.	7	...we **prescribe medications** (not including nicotine replacement therapy) for **patients with substance use disorder.**	B,C
8	...we offer prescription medications for serious complex co-occurring mental health and/or substance abuse diagnoses.	8	...we **prescribe medications** for **patients with routine mental health conditions** (e.g., anxiety, depression).	B,C
9	...we offer referral to non-clinical services outside of our practice.			A
		9	...we **prescribe medications** for **patients with Serious Mental Illness (SMI)** (e.g., psychosis, bipolar disorder).	B,C

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Figure 2. (*continued*)

WS	Workspace	WI	Workspace and Integration Methods	How Modified
1	…BH and medical clinicians work in:	4	… **behavioral health and medical clinicians** typically work in …	B, D
2	…patient treatment/care plans are documented in a medical record accessible to both BH and medical clinicians.	2	patients' **medical AND behavioral health documentation are shared** with both medical and behavioral health clinicians.	B, C, D
IN	Shared Care & Integration	**WI**	Workspace and Integration Methods (continued)	How Modified
1	…BH and Medical Clinicians regularly and actively exchange information about patient care.	1	… behavioral health and medical clinicians **actively collaborate** about patients when needed.	B, C, D
2	…there are regular educational activities including both BH and Medical Clinicians.	5	… behavioral health and medical clinicians **jointly attend educational activities.**	B, D
3	…BH and Medical Clinicians regularly spend time together collaborating on patient care.			A
4	…patients with BH needs have shared care plans developed jointly by the patient, BH and Medical Clinicians and updated over time.	3	… behavioral health and medical clinicians work from **shared treatment plans** for patients with behavioral health and medical needs.	B, C, D
ID	Case Identification	**ID**	Patient Identification	How Modified
1	…we screen eligible patients for at least one BH condition using a standardized procedure.	1	…we screen adults for **at least one mental health concern** with a validated tool.	B,C
2	…we use practice-level data to screen for patients at risk for at least one complex or special need.	4	…we regularly review retrospective **clinical or other patient data from across our practice** to identify patients who may need behavioral health services.	B,C
3	…patients are screened at least annually for at least one behavioral condition related to a chronic medical problem.	3	…we screen adults for **at least one substance use disorder concern** with a validated tool.	B,C
4	…patients are screened at least annually for lifestyle or behavioral risk factors.	2	… we screen adults for **at least one lifestyle behavior concern.**	B
5	…screening data are presented to clinicians prior to (or at) patient encounters with recommendations for patient care.			A
EN	Patient Engagement	**EN**	Patient Engagement	How Modified
1	…we successfully engage identified patients in Behavioral Care.	1	… we ensure patients who need **behavioral health services are offered them.**	B,C
2	…we successfully retain patients in Behavioral Care.	2	… we **monitor patient progress towards behavioral health goals they have endorsed.**	B,C
3	…we have specific systems to identify and intervene on patients who did not initiate or maintain care.	3	… we **reach out whenever patients do not continue behavioral health treatment as planned.**	B,C
4	…we have follow-up plans for all patients whose BH needs are resolved.	4	… we **re-evaluate patient need for follow-up among those who previously received behavioral health treatment.**	B,C

Note. Types of scale modifications are classified as follows: A = Eliminated redundant or overlapping items; B = Clarified items that were ambiguous, confusing, or overly broad; C = Standardized response categories; D = Placed items in the most useful appropriate domaines.

researchers may find value in an easily administered assessment of provider practices that describes their development of practice integration. PIP 2.0 offers a concise set of five domain-specific assessments that can be summarized in a single score. Researchers will continue to learn more about how to improve patient health outcomes and engage practices as the agents of change. A key determinant of practice-level performance may be degree of integration, measurable with PIP

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2.0 which is a 15-min survey completed by as few as four members of a practice. This tool provides a standardized measure of practice integration, which researchers can use to test hypotheses about how degree of integration relates to patient outcomes. Clinic leaders can use PIP 2.0 to assess health care delivery, by using it in quality improvement initiatives such as patient engagement, the interface between medical and behavioral providers, and the organization of clinic workflow. Future research can link PIP 2.0 results to meaningful changes that are shown to be associated with improved processes and outcomes.

Limitations

Although we conducted several interviews with professionals in primary care settings, recruitment was based on convenience. Furthermore, we did not survey a large number of clinics or cover the range of possible user organizations. For these reasons, we may have missed issues related to interpretation of PIP items and our results are not generalizable to the entire primary care field. PIP 2.0 has not yet accumulated enough usage to generate population norms, or to assess reliability and validity, although we expect it to perform at least as well as PIP 1.0.

Future Directions

As PIP 2.0 is adopted and data accumulate, we will publish norms and evaluate the relative reliability and validity of PIP 1.0 and PIP 2.0. Discriminating among the dimensions and levels of primary care-based BH integration is important to the field. Such efforts allow for the comparison of levels of integration with other dimensions and outcomes of care. The key domains of this standardized measure may also inform practices and researchers as they compare the range of diverse practices with variable access to resources, providers, and patient populations.

Finally, we acknowledge that representation of the patient voice in health care research and practice is important. Providers and clinic staff are not always aware of patients' perspectives and there may be dimensions of care that are important but not represented in the PIP. Integrated care affects the patient experience and future research is needed on the best ways to obtain patient perspectives on the level and value of integrated care.

References

Christian, E., Krall, V., Hulkower, S., & Stigleman, S. (2018). Primary care behavioral health integration: Promoting the quadruple aim. *North Carolina Medical Journal*, *79*(4), 250–255. https://doi.org/10.18043/ncm.79.4.250

Hitt, J. R., Brennhofer, S. A., Martin, M. P., Macchi, C. R., Mullin, D., van Eeghen, C., Littenberg, B., & Kessler, R. S. (2022). Further experience with the practice integration profile: A measure of behavioral health and primary care integration. *Journal of Clinical Psychology in Medical Settings*, *29*, 274–284. https://doi.org/10.1007/s10880-021-09806-z

Kessler, R. S., Auxier, A., Hitt, J. R., Macchi, C. R., Mullin, D., van Eeghen, C., & Littenberg, B. (2016). Development and validation of a measure of primary care behavioral health integration. *Families, Systems & Health*, *34*(4), 342–356. https://doi.org/10.1037/fsh0000227

Krippendorff, K. (2004). *Content analysis: An introduction to its methodology/Klaus Krippendorff* (2nd ed. ed.). Sage.

Lenz, A. S., Dell'Aquila, J., & Balkin, R. S. (2018). Effectiveness of integrated primary and behavioral healthcare. *Journal of Mental Health Counseling*, *40*(3), 249–265. https://doi.org/10.17744/mehc.40.3.06

Macchi, C. R., Kessler, R., Auxier, A., Hitt, J. R., Mullin, D., van Eeghen, C., & Littenberg, B. (2016). The practice integration profile: Rationale, development, method, and research. *Families, Systems & Health*, *34*(4), 334–341. https://doi.org/10.1037/fsh0000235

Martin, M. P., Macchi, C. R., Brennhofer, S. A., Trembath, F., Mullin, D., & Kessler, R. (2018). *The practice integration profile: An improvement study*. Collaborative Family Healthcare Association.

Mullin, D. J., Hargreaves, L., Auxier, A., Brennhofer, S. A., Hitt, J. R., Kessler, R. S., Littenberg, B., Macchi, C. R., Martin, M., Rose, G., Trembath, F., & van Eeghen, C. (2019). Measuring the integration of primary care and behavioral health services. *Health Services Research*, *54*(2), 379–389. https://doi.org/10.1111/1475-6773.13117

Peek, C. J., & Council, N. I. A. (2013). *Lexicon for behavioral health and primary care integration: Concepts and definitions developed by expert consensus* AHRQ. http://integrationacademy.ahrq.gov/sites/default/files/Lexicon.pdf

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