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Where do psychologists turn to inform clinical decisions? Audience segmentation to guide dissemination strategies

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Abstract

Background

Audience segmentation is an analysis technique that can identify meaningful subgroups within a population to inform the tailoring of dissemination strategies. We have conducted an empirical clustering audience segmentation study of licensed psychologists using survey data about the sources of knowledge they report most often consulting to guide their clinical decision-making. We identify meaningful subgroups within the population and inform the tailoring of dissemination strategies for evidence-based practice (EBP) materials.

Method

Data come from a 2018–2019 web-based survey of licensed psychologists who were members of the American Psychological Association (APA; $N = 518$, response rate = 29.8%). Ten dichotomous variables assessed sources that psychologists regularly consult to inform clinical decision-making (e.g., colleagues, academic literature, and practice guidelines). We used latent class analysis to identify segments of psychologists who turn to similar sources and named each segment based on the segment's most salient characteristics.

Results

Four audience segments were identified: the No-guidelines (45% of psychologists), Research-driven (16%), Thirsty-for-knowledge (9%), and No-reviews (30%). The four segments differed not only in their preferred sources of knowledge, but also in the types of evidence-based posttraumatic stress disorder (PTSD) treatments they provide, their awareness and usage intention of the APA PTSD clinical practice guideline, and attitudes toward clinical practice guidelines.

Conclusion

The results demonstrate that licensed psychologists are heterogeneous in terms of their knowledge-seeking behaviors and preferences for knowledge sources. The distinctive characteristics of these segments could guide the tailoring of dissemination materials and strategies to subsequently enhance the implementation of EBP among psychologists.

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Plain Language Summary: Audience segmentation is a dissemination strategy that categorizes a group of intended users or audience into meaningful subgroups based on their beliefs, behaviors, and/or other characteristics. Like many other scientific or medical fields, clinical psychology also struggles to use clinically tested psychological treatments (or EBPs) in everyday practice due to practical challenges. To help address such barriers, professional organizations like the American Psychological Association (APA) publish clinical practice guidelines that practitioners can use to learn more about EBPs. However, even these clinical practice guidelines are not often used, so this study employed the audience segmentation analysis to better understand psychologists' diverse attitudes, behaviors, and preferences regarding clinical practice guidelines and other clinical information sources. *Our study found four distinct subgroups within approximately 600 APA-registered psychologists based on their preferred source of knowledge: the no-guidelines (45% of psychologists), research-driven (16%), thirsty-for-knowledge (9%), and no-reviews (30%). Each subgroup also varied in the types of evidence-based treatments they provide, as well as their awareness, willingness to use, and attitudes toward clinical practice guidelines. This result shows that licensed psychologists are not a uniform group and that dissemination strategies should be adjusted to each subgroup's characteristics to maximize the effort to increase the use of EBPs among psychologists.*

Keywords
audience segmentation, latent class analysis, dissemination research, practice guidelines, evidence-based, health care provider, mental health workforce

Introduction

Clinical psychology, such as medicine, suffers from a historical failure to translate research findings into everyday practice (Baker et al., 2008). Although efficacious psychosocial treatments have been developed and rigorously tested, they do not always reach the patients for whom they were developed. To promote the uptake of evidence-based practices (EBPs) among clinicians, many professional organizations have distributed policy statements, practice guidelines, and practitioner toolkits (American Psychiatric Association, 2023; American Psychological Association, 2021; American Psychological Association, Presidential Task Force on Evidence-Based Practice, 2006).

A particular topic of EBP in clinical psychology that has gained growing attention is the treatment of posttraumatic stress disorder (PTSD). PTSD has long been one of the most common and debilitating mental disorders, affecting approximately 7% of Americans with significant rates of morbidity and mortality (Finch et al., 2020; Monson et al., 2018; Nobles et al., 2016; US Department of Veterans Affairs, n.d.). While the effectiveness and benefits of certain psychotherapies for PTSD have been validated, a large number of clinicians continue to lack the necessary knowledge and skills to deliver evidence-based treatments for PTSD (Rosen et al., 2017). In order to address this treatment gap, several key organizations such as the American Psychological Association (APA) and the Veterans Health Administration have published clinical practice guidelines (CPGs) that systematically review and recommend EBPs for treating PTSD in adults (American Psychological Association & Guideline Development Panel for the Treatment of PTSD in Adults, 2017; VA/DoD Clinical Practice Guideline Working Group, 2017).

Since its publication of the CPG for the Treatment of PTSD (the "APA PTSD guideline") in 2017, APA's Advisory Steering Committee (ASC) for Development of CPGs has been interested in further examining the reach and impact of APA's CPGs initiative, one of its major EBP movement efforts. ASC decided to start with the APA PTSD guideline as it had been available the longest with hopes that these survey results would inform its future CPG efforts. As a result, APA conducted a survey of licensed clinical psychologists regarding their preferred modes of receiving information about CPGs and awareness about, attitudes toward, and utilization of the APA PTSD guideline to inform the dissemination of information about APA CPGs.

In the field of dissemination and implementation (D&I) science, decisions related to the packaging and distribution of information are aimed to improve the reach and adoption of EBPs through "the spread of knowledge via strategic communication" (Purtle, Marzalik, et al., 2020). Dissemination strategies in D&I science have been understudied but hold promise because of the potential to reach large populations with relatively minimal expense or effort (Baumann et al., 2022; Brownson et al., 2018; Glasgow et al., 2012; Purtle, Nelson, et al., 2020; Turon et al., 2023). Successful dissemination depends on understanding a target audience in order to effectively tailor materials and strategies (Smith, 2017). One method often used in dissemination science is audience segmentation research, which seeks to identify meaningful subgroups within a practice population based on demographic or psychosocial variables (Leeman et al., 2017). Among various empirical clustering methods, latent class analysis (LCA) is considered

the most statistically advantageous technique for identifying and forming subgroups of the target population (Maibach et al., 2011; Purtle et al., 2018, 2022; Smith et al., 2022; Weller et al., 2020).

Thus, the purpose of the current study is to conduct an empirical clustering audience segmentation analysis to identify subgroups of clinical psychologists based on the types of their preferred sources of clinical knowledge. More details about the distinctive characteristics of each subgroup can inform better tailoring of the dissemination materials about PTSD treatment and improve the uptake of EBPs among clinical psychologists in the United States. To our knowledge, no prior studies have used an empirical clustering approach to identify groups of clinical psychologists and analyze their diverse EBP usage behavior.

Method

Study Design and Data

The online survey (Supplemental Material 1) was primarily adapted from The Clinician Guideline Determinants Questionnaire, a validated instrument assessing potential determinants of guideline use from the clinician/user perspective, and other instruments addressing attitudes toward EBPs (Gagliardi et al., 2019; Purtle, Marzalik, et al., 2020). The survey contained a total of 24 questions on clinical practice, awareness, usage intention of, and attitudes toward the APA PTSD guideline, and preferred information features to be included in the guideline.

The survey was implemented between 13 December 2018 and 10 January 2019. Among 29,322 licensed psychologists who were listed as APA members at the time of the survey, a randomly selected sample of 2,000 members received a personalized email to participate in the web-based survey. Potential participants were contacted up to four times, and a $5 gift card was offered for the completion of the survey. Out of the 2,000 randomly selected and contacted members, a total of 14 were excluded from the survey: 12 missing email addresses to receive the survey, one being an ASC member, and one being a member of the Guideline Development Panel for the Treatment of PTSD in Adults. The survey instruction informed the participants that their responses would be completely confidential and that the survey results would be summarized in reports for APA leadership and also submitted for publication in peer-reviewed journals.

Measures

Preferred Sources of Clinical Knowledge or Guidance

We asked clinicians to select all of the sources they most often consult to guide their clinical decision-making from a list of 10 sources: colleagues; clients/patients; psychological, medical, or academic literature; electronic application or database; Internet; guidance from government, regulatory agency or professional society; educational meetings/conferences; psychological, medical or health books; systematic reviews; and guidelines. These responses served as the ten dichotomous variables that were used in the audience segmentation LCA.

Clinical Practice

The questions on clinical practice detailed clinicians' primary practice settings and the types of treatments they provide for PTSD. Participants were asked to select all the types of treatments they provide for adults diagnosed with PTSD from 12 choices: none, brief eclectic psychotherapy (BEP), cognitive behavioral therapy (CBT), cognitive processing therapy (CPT), cognitive therapy (CT), eye movement desensitization and reprocessing (EMDR) therapy, interpersonal processing therapy[1] (IPT), narrative exposure therapy (NET), pharmacotherapy, prolonged exposure (PE), psychodynamic psychotherapy, and other.

The APA PTSD guideline classified psychotherapies/interventions for the treatment of PTSD in adults into three types of recommendations based largely on a systematic review of the scientific evidence: CBT, CPT, CT, and PE as "strongly recommended"; BEP, EMDR, NET, and pharmacotherapy as "suggested"; and seeking safety and relaxation as "insufficient evidence."[2] While IPT and psychodynamic psychotherapy are used in the treatment of adults with PTSD, at the time of the PTSD guideline's development, sufficient evidence of quality for these two interventions was not available for review. Additionally, we would like to note that both insufficient evidence and no recommendation statement do not mean "recommended against" but rather simply that there was not enough evidence of sufficient quality for a recommendation. This distinction is important. This classification of each treatment practice into the three types of recommendations was not mentioned in the survey but utilized in the analysis.

Awareness and Usage Intention of the APA PTSD Guideline

The survey asked licensed psychologists how familiar they were with the guideline: if they were aware of the APA guideline and its website, and the process of how the guideline was created (1 = not familiar at all, 5 = very familiar). We also asked if the respondents think they will use the guideline in the future and whether any other outside organizations or individuals expect them to utilize the guideline.

Attitudes Toward the APA PTSD Guideline and CPGs in General

Clinical psychologists were presented with nine statements regarding the APA PTSD guideline and scored their views on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Additionally, 14 items assessed attitudes toward CPGs in general (e.g., "guideline-based treatment is not clinically useful") and willingness to adopt

CPGs in general (e.g., "I am willing to try new guidelines even if I have to follow a manual").

Preferred Features of the APA PTSD Guideline

This section of the survey focused on different features of information about the PTSD guideline. Clinical psychologists indicated how important each information feature is to be included in the PTSD guideline on a 5-point Likert scale (1 = not important, 5 = very important): clinical case examples, detailed information about the guideline development process, and clear rationale for the inclusion or exclusion of specific treatments.

Statistical Analyses

LCA is the preferred analytic method for audience segmentation research (Smith, 2017). Five hundred and eighteen out of 591 psychologists who responded "yes" to the question of "Are you currently providing psychological treatment?" were included in the LCA. All identifying information was anonymized prior to the LCA step. Using PROC LCA in SAS, we clustered clinical psychologists into audience segments based on their responses to the 10 variables of information sources (Collins & Lanza, 2009; Lanza et al., 2007; Weller et al., 2020). We calculated fit indices for three- to six-class models and then selected the optimal model based on the criteria of identification, fit statistics, and interpretability. Goodness-of-fit indices included the Akaike information criterion (AIC), Bayesian information criterion (BIC), and sample-size-adjusted BIC (Lanza et al., 2015; Weller et al., 2020). To test model identification and replicability, we used 1,000 different start values to estimate parameters for each model and calculated the proportion of iterations that converged to the same maximum likelihood solution (Collins & Lanza, 2009; Weller et al., 2020). Consistent with prior audience segmentation analysis to inform dissemination strategies, we named each segment based on its most salient characteristics and assigned each survey respondent to the segment to which they had the highest probability of belonging (Purtle et al., 2018; Weller et al., 2020). To further explore each segment's diverse behaviors and preferences in clinical practice, we used chi-squared tests and analysis of variance (ANOVA) to examine differences across the four segments.

As the study utilized data from a cross-sectional survey and LCA, the strengthening the reporting of observational studies in epidemiology (STROBE) cross-sectional reporting guidelines and LCA basic reporting guidelines provided the framework for this article (Schreiber, 2017; von Elm et al., 2007).

Results

Descriptive Statistics and Demographic Information

A total of 591 licensed psychologists completed the survey (response rate = 29.8%), and analysis showed that participants and nonparticipants did not statistically differ in gender, race/ethnicity, or mean age. Fifty-seven percent of the respondents identified themselves as female, 82% as non-Hispanic White, and 78% reported practicing primarily in private settings. Out of the 518 participants who are currently practicing and thus included in the LCA, 79% reported that they serve adults with PTSD, 93% of those stated that PTSD treatment makes up part of their practice, while only 4% exclusively offer PTSD services to adults.

Characteristics of Audience Segments

Table 1 presents LCA results for different class models, and we found that a four-class solution was the best fit based on the BIC, as the BIC is considered the most reliable fit statistic in LCA (Weller et al., 2020). Thus, four segments were identified (Table 2). The largest segment labeled the *No-guidelines*, included 45% of the clinical psychologists. They reported no usage of CPGs or guidance from government agencies and professional societies and were also least likely to consult all other sources—except for colleagues. Eighty-one percent of *No-guidelines* reported currently providing services to adults with PTSD. Eighty-one percent of them primarily practiced in private practice, and 13% of them practiced at a school or university, including academic medical centers. Second, the *Research-driven* segment (16%) was

Table 1
Fit Statistics by Number of Classes

Number of classes	Log-likelihood	AIC	BIC	Adjusted BIC	Degree of freedom	Model identification/replicability[a]
3	−2815.97	582.18	718.18	616.60	991	18.5%
4	−2794.50	561.26	744.00	607.51	980	92.8%
5	−2781.28	556.80	786.30	614.89	969	21.8%
6	−2771.67	559.58	835.83	629.651	958	1.2%

Note. AIC: Akaike Information Criterion, BIC: Bayesian Information Criterion.
[a]The proportion of 1,000 iterations that converged to the same maximum likelihood solution.

Table 2
Distribution of the 10 Latent Class Analysis (LCA) Variables Across the Four Segments

	No-guidelines ($n = 235$)	Research-driven (n = 83)	Thirsty-for-knowledge ($n = 47$)	No-reviews ($n = 153$)
Sources	%	%	%	%
Colleagues	89.36	63.86	97.87	77.12
Clients/patients	30.64	22.89	63.83	30.07
Psychological, medical, or academic literature	80.00	91.57	100.00	88.89
Electronic applications or database	5.96	25.30	70.21	7.19
Internet	22.55	8.43	57.45	42.48
Guidance from government, regulatory agency, or professional society	0.00	39.76	85.11	67.32
Educational meetings/conferences	67.66	67.47	100.00	75.16
Psychological, medical, or health books	55.32	51.81	97.87	66.67
Systematic reviews	10.21	100.00	85.11	0.00
Guidelines	0.00	79.52	87.23	62.75

Note. Percent of participants checking each source, in each segment—the total will not add up to 100%.

most likely to refer to systematic reviews, psychological, medical, or academic literature, and practice guidelines, but less likely to turn to colleagues, clients, and the internet than psychologists in other segments. Eighty percent of them were currently treating adults with PTSD. While 54% of the *Research-driven* psychologists worked in private practice settings, 29% of them were in school, university, or academic medical center settings, reflecting their research-focused characteristics, and 6% of them served in rehabilitation-focused settings. The *Thirsty-for-knowledge* segment (9%) indicated the highest consultation of most sources (nine of 10), exhibiting the most proactive knowledge-seeking behaviors. Seventy-nine percent of the *Thirsty-for-knowledge* psychologists were serving adults with PTSD. Sixty-six percent of them were in private practice, and 26% practiced in school, university, or academic medical center settings. Lastly, psychologists in the *No-reviews* segment (30%) turned to most sources to a moderate extent, except for systematic reviews. Seventy-four percent of them reported that they currently provided PTSD services to adults. Eighty-four percent of *No-reviews* were primarily in private practice settings, and 14% of them were based in school, university, or academic medical center settings.

Interestingly, the four segments displayed significant differences in their main practice settings. A chi-square test of independence revealed that there was a significant association between segment membership and three primary practice settings (private practice, academic/research setting, and others), $\chi^2(6, N = 518) = 36.92$, $p < .001$.

Segment Membership and Guideline Awareness and Future Usage Intention

The mean awareness level of the APA PTSD guideline across all clinical psychologists was relatively low ($M = 2.2$, $SD = 1.2$). However, a one-way ANOVA demonstrated that significant differences in the level of awareness existed among the four segments, $F(3, 514) = 11.59$, $p < .001$, $\eta^2 = .063$. Posthoc analysis using Tukey's honestly significant difference (HSD) indicated that the *No-guidelines* had the lowest awareness of the APA PTSD guideline amongst all four segments, $p < .001$, while the *Thirsty-for-knowledge* reported the highest awareness level. In addition, all four segments also expressed an overall low intention of using the APA PTSD guideline in the future ($M = 2.9$, $SD = 1.1$). However, there was a small positive correlation between awareness of the guideline and future usage intention for the *Research-driven* ($r = .23$, $p = .037$) and *No-reviews* segments ($r = .32$, $p < .001$), which could show promise with future dissemination efforts.

Segment Membership and Attitude Toward the APA PTSD Guideline

Given the relatively low awareness of the existence of the APA PTSD guideline, only 56 to 72 percent of the participants responded to the questionnaires on their attitudes toward the APA PTSD guideline (Table 3). The *No-guidelines* showed a below-average response rate on all nine items, which is consistent with their lowest level of awareness of the guideline. The *Research-driven* and *No-reviews* displayed similar response rates, ranging from 60% to 79% across items, whereas the *Thirsty-for-knowledge* exhibited the highest response rate across all items amongst the segments.

Of those who shared their opinions on the guideline, the four segments showed the greatest difference in the statements that the guideline "does not represent all points of view," $F(3, 302) = 4.52$, $p = .004$, "can be adapted for the needs of specific clients," $F(3, 309) = 3.98$, $p = .008$, and "is not compatible with the realities of practicing clinicians," $F(3, 301) = 5.64$, $p = .001$.

Table 3
Means and Response Rates of Each Segment's Attitudes Toward the CPG for the Treatment of PTSD Across the Four Segments

	No-guidelines		Research-driven		Thirsty-for-knowledge		No-reviews		
The guideline…	*M*	%	*M*	%	*M*	%	*M*	%	η^2
Is based on the best research available*	3.77	60	4.18	72	3.92	83	4.19	69	.031
Does not adequately represent all points of view**	3.41	49	2.69	66	3.22	77	2.93	65	.043
Is relevant to my clients/patients	3.35	62	3.65	76	3.49	91	3.65	79	.014
Can be adapted for the needs of specific clients/patients**	3.46	50	3.98	66	3.67	83	3.74	66	.037
Is easy to understand	3.63	48	3.86	67	3.91	74	3.85	62	.017
Can be implemented at a low cost	3.53	45	3.78	60	3.67	77	3.78	63	.014
Is unlikely to change my current practices	3.06	65	2.92	71	2.93	87	2.92	75	.004
Is compatible with the realities of practicing clinicians**	3.10	50	3.61	67	3.00	77	3.56	62	.053
Can be implemented without me needing to acquire new skills*	2.93	52	3.31	66	3.03	81	3.34	67	.030

Note. Rating on a 5-point scale: 1 = strongly disagree, 5 = strongly agree.
*$p < .05$, **$p < .01$, ***$p < .001$.

The *Research-driven* segment demonstrated an overall positive endorsement of the guideline across items, agreeing that the guideline is "based on the best research" ($M = 4.2$, $SD = 0.9$) and "can be adapted for the specific needs of clients" ($M = 3.98$, $SD = 0.9$). They least supported the statement that the guideline does not sufficiently represent all perspectives ($M = 2.7$, $SD = 1.3$), which contrasted significantly with the *No-guidelines*' strongest endorsement of this statement ($M = 3.4$, $SD = 1.3$; Tukey's HSD $p = .006$). Interestingly, like the *Research-driven*, the *No-reviews* also strongly endorsed the statement that the APA PTSD guideline is "based on the best research available" ($M = 4.2$, $SD = 0.9$), and their attitude toward the guideline remained relatively moderate to positive across other items, with means ranging from 3.1 to 3.8.

The *Thirsty-for-knowledge* segment exhibited a relatively neutral attitude toward the APA PTSD guideline, with mean scores ranging between 2.8 and 3.9, but they unexpectedly showed the lowest endorsement of the guideline being compatible with the realities of practicing clinicians ($M = 3.0$, $SD = 1.1$) when compared to the *Research-driven* ($M = 3.6$, $SD = 0.9$, $p = .041$) and *No-reviews* ($M = 3.6$, $SD = 1.0$, $p = .040$) segments.

Segment Membership and Perceived Importance of Each Information Feature in the APA PTSD Guideline

As shown in Table 4, all four information features were rated somewhat important or above, and "clear rationale for the inclusion of specific practices/treatments in the guideline" was endorsed as the most important feature to be included in the APA PTSD guideline ($M = 4.4$, $SD = 0.9$). On the other hand, "detailed information about the guideline development process" was perceived to be less important to be included in the guideline ($M = 3.1$, $SD = 1.2$). The four segments demonstrated small to moderate differences in how important it is for "clear case examples" to be included in the guideline, $F(3, 510) = 4.96$, $p = .002$, $\eta^2 = .028$, with the *Thirsty-for-knowledge* rating it the highest ($M = 4.6$, $SD = 0.8$), and the *research-driven* rating it the lowest ($M = 3.9$, $SD = 1.1$) comparatively. Except for "clear case examples," three other information features differed significantly in perceived importance among the four segments, but the actual mean differences between the segments were quite small (η^2 ranging between .017 and .021).

Segment Membership and Guideline Concurrent Treatment

The four segments of psychologists exhibited distinctive behaviors in terms of the types of treatments they provide for adults diagnosed with PTSD. Among 10 different treatment practices presented in the survey, the four

Table 4
Means, Standard Deviations, and One-Way Analyses of Variance of Each Information Feature Across the Four Segments

	No-guidelines		Research-driven		Thirsty-for-knowledge		No-reviews			
Information feature	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(3, 518)	η^2
Clear case examples	4.14	1.09	3.85	1.10	4.55	0.78	4.22	0.94	4.96**	.028
Guideline development process	3.04	1.28	3.05	1.11	3.63	0.97	3.07	1.08	3.42*	.020
Inclusion of practices/treatments	4.28	1.01	4.50	0.69	4.70	0.62	4.35	0.87	3.64*	.021
Exclusion of practices/treatments	4.08	1.15	4.37	0.79	4.48	0.82	4.22	0.96	2.85*	.017

Note. Rating on a 5-point scale: 1 = not important, 5 = very important.
*$p < .05$, **$p < .01$, ***$p < .001$.

segments differed significantly in the self-reported frequency of providing BEP, CPT, CT, PE, and psychodynamic psychotherapy (Table 5). More importantly, applying the classification of the 10 treatment practices into three different types of APA guideline-recommended interventions for the treatment of PTSD, there was a significant relationship between segment membership and provision of the strongly recommended treatments, $\chi^2(3, N = 407) = 7.95$, $p = .047$, $V = .14$, as well as the non-suggested treatments, $\chi^2(3, N = 407) = 17.03$, $p < .001$, $V = .21$. Subsequent posthoc testing using pairwise *Z*-tests with Bonferroni adjusted α levels revealed that psychologists in the *Research-driven* segment ($p < .001$) were less likely to use at least one of the non-suggested treatment practices compared to the three other segments.

Discussion

We believe that this is the first study applying an empirical clustering audience segmentation methodology, specifically LCA, to a group of clinical psychologists to analyze both their behavior and attitudes. The four segments, based on the sources they regularly consult to guide their clinical decision-making, differed significantly on their primary practice settings, awareness and willingness to use the APA PTSD guideline, preferred information features of the guideline, and the types of interventions they provide for the treatment of PTSD.

Comprising almost half of the licensed clinical psychologists, the *No-guidelines* segment reported no usage of guidelines or publications from government, regulatory agency, or professional society. They also demonstrated the lowest awareness of the APA PTSD guideline and willingness to use it in the future. In terms of awareness of and attitude toward the APA PTSD guideline, the *Thirsty-for-knowledge* was most familiar with and curious about the guideline, but the *Research-driven* segment was more likely to express positive attitudes toward the APA PTSD guideline and provide the guideline's strongly recommended interventions. Moreover, the *Research-driven* segment was least likely to provide a treatment that was not included in the guideline-suggested treatments such as psychodynamic psychotherapy compared to the three other segments.

These findings are consistent with and expand on previous dissemination research with the study sample of APA-affiliated psychologists (Purtle, Marzalik, et al., 2020). The previous study classified psychologists into only two groups based on their regular use of guidelines, and the regular users (39% of the sample) and nonusers differed in terms of "their awareness, adoption, and attitudes related to the guideline" (Purtle, Marzalik, et al., 2020). Our study empirically clustered the same sample of participants into four segments of clinical psychologists based on their usage of 10 different sources of information that guide their clinical decision-making. The four segments'

Table 5
Self-Reported Frequencies of PTSD Treatments Provided Across the Four Segments With Chi-Square Results for Segment Membership and Provision of Guideline Recommended Treatment

	No-guideline	Research-driven	Thirsty-for-knowledge	No-reviews		
	%	%	%	%	$\chi^2(6)$	Cramer's *V*
Strongly recommended	70	83	86	78	7.95*	.140
CBT	63	73	84	68		
CPT	12	29	24	23		
CT	15	17	35	24		
PE	11	29	24	14		
Suggested	31	35	30	29	1.36	.040
BEP	7	18	19	10		
EMDR	17	11	3	17		
NET	9	15	16	15		
Pharmacotherapy	2	3	3	0		
Nonsuggested	48	20	46	39	17.93***	.205
IPT	15	11	19	17		
Psychodynamic psychotherapy	36	15	27	31		

Note. BEP = brief eclectic psychotherapy; CBT = cognitive behavioral therapy; CPT = cognitive processing therapy; CT = cognitive therapy; EMDR = eye movement desensitization and reprocessing; IPT = interpersonal processing therapy; NET = narrative exposure therapy; PE = prolonged exposure; PTSD = posttraumatic stress disorder. Psychologists were asked to select all types of PTSD treatments they provide. The percentages do not add up to 100%.
*$p < .05$, **$p < .01$, ***$p < .001$.

awareness, behavior, attitudes, and self-report of therapeutic techniques are consistent with the labels we provided: *No-guidelines, Research-driven, Thirsty-for-knowledge,* and *No-reviews*. However, it is critical to note that labeling subpopulations is only a first step to addressing dissemination quandaries; further research is needed to examine the effectiveness of specific dissemination strategies for particular subgroups of clinical psychologists.

Implications for Future Dissemination and Communication Efforts

Almost half of the psychologists, the *No-guidelines* segment, indicated that the APA PTSD guideline is not very adaptable to individual cases and not compatible with the realities of practicing clinicians. They also highly endorsed the statement that the guideline "does not adequately represent all points of view" compared to the three other segments. The *No-guidelines* seemed to prioritize individual cases over aggregate data, which is in fact consistent with prior research. Clinical psychologists found empirically supported treatments more compelling and expressed greater willingness to adopt them when outcome results were presented with a case study, while the inclusion of statistical information did not have a significant effect on attitudes or training willingness (Stewart & Chambless, 2009). Additionally, the *No-guidelines'* rating of "clear rationale for inclusion of specific practices/treatments" and "clear case examples" as important information features and information about the guideline development process as a somewhat important feature to be included in the guideline is an implicit recommendation of how guidelines can become more appealing to them. This result signifies that future strategies and research should focus on how to include clinical case examples that are more applicable even within aggregated, systematically reviewed EBP resources.

Another important factor to consider is the practice settings of the four segments and the resources certain settings can provide to their employees. One study that assessed the association between clinical psychologists' familiarity with online research resources and implementation of EBPs demonstrated that those employed in academic or research settings were significantly more familiar with and knowledgeable about online EBP resources compared to those in private practice settings (Berke et al., 2011). Moreover, cognitive/behavioral-oriented clinical psychologists felt more knowledgeable about online EBP resources compared to their humanistic/existential and/or psychoanalytic/psychodynamic-oriented colleagues. These findings are consistent with the current study's result of the *Research-driven* segment, which mostly consults systematic reviews and psychological, medical, or academic literature, and the *Thirsty-for-knowledge* segment, which proactively consults most sources, having higher proportions of psychologists practicing in academic settings compared to the *No-guidelines* and *No-reviews* segments. In addition, the *Research-driven* and *Thirsty-for-knowledge* reported more frequently providing at least one of the APA PTSD guideline's strongly recommended treatments to adults with PTSD, while the *No-guidelines* were more likely to provide a treatment

that was not included in the guideline-suggested treatments compared to the three other segments. These differences may be associated with the reality that many journals and/or libraries require an academic or institutional affiliation, so clinical psychologists employed by academic or research institutions have greater access to a wider variety of information sources and thus have greater awareness and knowledge about EBP sources and more likely to adopt EBPs. Therefore, future dissemination efforts should also consider the issue of reach and access for individual practitioners who may not be a part of any organizations.

Nonetheless, we would like to note that "psychological, medical or academic literature" was prominently the most utilized source of clinical knowledge across all four segments. We believe that the high frequency of literature use across all four segments comes from the familiarity of searching for and referring to peer-reviewed journal articles in comparison to other sources. In many graduate programs, clinical psychologists are trained to refer to the literature, and we believe that this level of familiarity and comfort, as well as the brevity of journal articles compared to, for example, books or systematic reviews make peer-reviewed articles a preferred source of clinical knowledge of many practicing psychologists. This trend seems to be consistent with the result of Berke et al. (2011): clinical psychologists were most familiar with the "least filtered" sources in which "the raw data of original research studies that have not yet been synthesized or aggregated" are updated, whereas psychologists were least familiar with the "most filtered" resources where expert analysis and synthesized information of individual studies are shared. Given that practicing psychologists are often overworked and burned out due to their demand and workload, we would like to believe that if accessible and effective training, as well as financial compensations for their hours, were provided, other EBP sources, including CPGs, can be better considered and utilized among clinical psychologists (Lin et al., 2023)

Limitations

Our study has four main limitations. First, although the response rate of 29.8% is consistent with past surveys of psychologists and nonresponses analysis did not observe significant differences between respondents and nonrespondents, it is possible that survey respondents (who are APA members) are not representative of all licensed psychologists (Purtle, Marzalik, et al., 2020). Second, the two most common audience segmentation approaches are empirical clustering and demographic separation (Smith, 2017). In our study, we categorized, labeled, and analyzed each segment's characteristics using empirical clustering, so we do not know whether classifying the clinical psychologists by demographic information will lead to similar segmentation and characteristics or whether certain age, sex, race/ethnicity, or education level characteristics will be associated with certain segments in our analyses. Third, although our study sample size ($N = 591$) was larger than the minimum sample size for reliable LCA results suggested by previous studies, the quality of parameter estimation in LCA may be impacted by other factors (Finch & Bronk, 2011; Nylund-Gibson & Choi, 2018; Wurpts, 2012). Further study with a larger sample size, more indicators, a higher quality of indicators, and a larger covariate effect may lead to more converged and proper replications of LCA (Wurpts & Geiser, 2014). Fourth, in most cases, it may not be realistic to cluster audiences prior to disseminating information, but when the information that potentially distinguishes different audience segments is available, such as in this study, then it may be possible to emphasize different features or characteristics of guidelines accordingly.

Conclusions

Clinical psychologists have diverse behavior, preferences, knowledge of, and attitudes toward EBPs and dissemination materials of EBPs. However, the different groups and needs of clinicians are still greatly understudied through the lens of dissemination science (Baumann et al., 2022). The empirical clustering approach of audience segmentation can help optimize the effectiveness of future dissemination efforts.

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Data Availability Statement

The data will be made available upon a reasonable request.

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Supplemental Material

Supplemental material for this article is available online.

Notes

1. Interpersonal processing therapy is also called interpersonal psychotherapy or interpersonal therapy.
2. It is not the purpose of this article to argue for or against the evidentiary designations put forth by the APA's Clinical Practice Guideline for the treatment of PTSD in Adults. For a discussion

of these issues, please see Dauphin, V. B. (2020). A critique of the American Psychological Association clinical practice guideline for the treatment of posttraumatic stress disorder (PTSD) in Adults. *Psychoanalytic Psychology, 37*(2), 117–127. https://doi.org/10.1037/pap0000253; Courtois, C. A., & Brown, L. S. (2019). Guideline orthodoxy and resulting limitations of the American Psychological Association's Clinical Practice Guideline for the Treatment of PTSD in Adults. *Psychotherapy*, *56*(3), 329–339. https://doi.org/10.1037/pst0000239

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