

# Reporting quality of survey research articles published in the *American Journal of Pharmaceutical Education*

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## Background:

- In a review of pharmacy literature in 2004, survey research was the most common research method utilized and accounted for 25% of journal articles published in pharmacy literature.<sup>1</sup>
- In 2008, Draugalis and colleagues introduced Best Practices for Survey Research Reports published in the *American Journal of Pharmaceutical Education (AJPE)*.<sup>2</sup>
- A review of survey research papers published in *AJPE* in 2005 and 2006 revealed deficiencies in information concerning reliability and/or validity, pre-testing of instruments, and adequate response rates.<sup>2</sup>
- Bennett and colleagues systematically reviewed published survey research reports from 34 general medical journals and found that only 35% of articles provided the survey instrument, less than 20% reported on validity or reliability of the instrument, and only 17% reported pre-testing of the survey instrument.<sup>3</sup>
- No literature exists systematically evaluating the reporting quality of survey research articles published in *AJPE* following the guidance published by Draugalis in 2008.

## Objective:

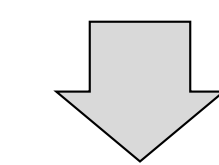
To examine the reporting quality of survey research articles published in the *American Journal of Pharmaceutical Education* in 2016.

## Methodology:

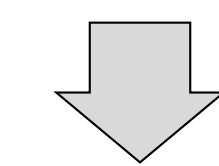
- A cross-sectional study of survey research articles published in *AJPE* from January 1, 2016 through December 31, 2016 that involved self-administered questionnaires was conducted.
- The title and abstract for each article published in *AJPE* in 2016 were reviewed to identify articles using survey research methodology by two investigators. Articles were excluded if the primary endpoint was evaluated by mixed methods, focus groups, semi-structured interviews, or interviews.
- A previously published, 35-item checklist developed by survey research methodology experts was modified by the investigators.<sup>3</sup>
- The checklist included items from *AJPE* Best Practices for Survey Research Reports, standards from the Enhancing the Quality and Transparency of Health Research (EQUATOR) Network, and the American Association for Public Opinion Research (AAPOR).<sup>2,4-6</sup>
- To pilot test the checklist, all investigators evaluated four pre-specified articles. Checklist items were modified or removed based on consensus.
- The final checklist included 30 items, each weighted as one point.
- Each article was evaluated by two independent investigators using the modified checklist.
- If two investigators were not able to meet consensus, a consultation with a third investigator was conducted.
- Data was analyzed using descriptive statistics.
- IRB approval was not granted as the study was deemed to not be human subjects research.

### Methodology Overview:

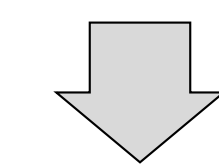
#### Inclusion/Exclusion Determination



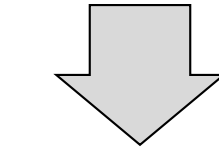
#### Pilot checklist instrument



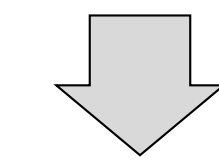
#### Independent review of articles



#### Compare results with second reviewer



#### Discrepancy mediation with third reviewer (if needed)



#### Full sample data analysis

## Study Inclusion:

94 full text articles assessed for eligibility (*AJPE*)

### 48 articles excluded:

- 43 did not use survey methodology as primary analysis
- 2 used focus groups
- 2 used qualitative interviews
- 1 used semi-structured interviews

46 articles analyzed for reporting quality

	<i>AJPE</i> 2005-2006 <sup>2</sup> (n=20)	<i>AJPE</i> 2016 (n=46)	Medical Literature <sup>3</sup> (n=117)
<b>Pretesting of survey instrument reported</b>	40%	49%*	18%^
<b>Response Rate ≤ 60%</b>	65%	9%**	n/a
<b>Information concerning reliability/validity of survey instrument</b>	50%	59%	29%
<b>Type/number of contacts</b>			
- Type and number	n/a	15%	52%
- Type only		33%	13%
- No information		52%	35%
<b>Generalizability of results discussed</b>	n/a	65%	40%

\*New instruments (n=41)

\*\*Articles reporting response rate(n=45)

^New instruments (n=111)

n/a: data not provided

**Average Response Rate (range):**  
81.3%  
(39-100%)

**Average Score ± SD (out of 30):**  
17.88 ± 1.98

## Results:

Checklist Item	N (%) reported*
<b>Design of Study Stated:</b>	
Both Title and Abstract	1 (2%)
Either Title or Abstract^	44 (96%)
Not stated	1 (2%)
<b>Background information provided in introduction</b>	46 (100%)
<b>Purpose/aim of paper explicitly stated in introduction</b>	46 (100%)
<b>Description of questionnaire provided:</b>	
Full questionnaire provided	7 (15%)
At least one complete question provided^	25 (54%)
Questions not provided	14 (30%)
<b>Type of research tool:</b>	
New	41 (89%)
Existing	5 (11%)
<b>For existing tools (n=5), psychometric properties provided</b>	4 (80%)
<b>For existing tools (n=5), referenced original work</b>	5 (100%)
<b>For new tools (n=41), pre-testing procedures reported</b>	20 (49%)
<b>For new tools (n=41), reliability/validity reported</b>	
Both reliability and validity	7 (17%)
Reliability only^	5 (12%)
Validity only^	11 (27%)
Neither	18 (44%)
<b>Mode of Administration</b>	
Remote/Mail	0 (0%)
Remote/Internet	22 (48%)
Distributed in person	16 (35%)
Not stated	8 (17%)
<b>Information on financial incentives provided</b>	10 (22%)
<b>Description of who approached potential participants</b>	5 (11%)
<b>Description of survey population and sample frame</b>	
Both survey population and sample frame	46 (100%)

Checklist Item	N (%) reported*
<b>Information on type and number of contacts provided</b>	
Type and number	7 (15%)
Type only^	15 (33%)
No information	24 (52%)
<b>Method of data analysis described</b>	
Adequate	41 (89%)
Inadequate^	5 (11%)
No description	0 (0%)
<b>Sample size calculation or justification provided</b>	31 (67%)
<b>Method for analysis of nonresponse error provided</b>	0 (0%)
<b>Method for calculating response rate provided</b>	42 (91%)
<b>Definition for complete vs. partial response provided</b>	4 (9%)
<b>Methods for handling missing data provided</b>	6 (13%)
<b>Response rate reported</b>	45 (98%)
<b>All respondents accounted for</b>	31 (67%)
<b>Information about how non-respondents differ from respondents provided</b>	1 (2%)
<b>Results clearly presented</b>	
Yes, complete	44 (96%)
Yes, partial^	2 (4%)
<b>Results address the objectives</b>	45 (98%)
<b>Results summarized referencing study objectives</b>	46 (100%)
<b>Strengths of the study stated</b>	10 (22%)
<b>Limitations of study stated</b>	45 (98%)
<b>Generalizability of results discussed</b>	30 (65%)
<b>Study funding reported</b>	9 (20%)
<b>IRB review reported</b>	46 (100%)
<b>Subject consent procedures reported</b>	
Yes	6 (13%)
Reported waiver of consent	1 (2%)
Not stated	39 (85%)

\*Percentages may not add to 100% due to rounding

^Choice scored as 0.5 points

## Limitations:

- The checklist items have potential to be subjective.
- Results cannot be directly compared between *AJPE* issues or to Bennett's review of medical survey research.
- AJPE* results may not be representative of all pharmacy survey research reporting quality.

## Conclusions:

- The Best Practices for Survey Research Reports appears to hold pharmacy survey literature to a high standard, and overall, pharmacy survey research performed well on these specific best practices.
- Reporting of pretesting procedures and reliability, validity, and/or psychometric properties of the survey tool improved from Draugalis' review of articles published in 2005-2006.
- Although the results cannot be directly compared to Bennett's review of medical survey research, *AJPE* articles appeared to have a higher reporting quality.
- Areas for continued improvement in the reporting quality of survey research in the pharmacy literature include providing information on missing data, complete responses, and nonresponse bias.

## Future Direction:

- Evaluate reporting quality of survey research articles published in several pharmacy journals.
- Determine factors that are correlated with better quality reporting in survey research such as type of author, journal of publication, or type of article.

## References:

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