

Science vs. Pseudoscience in CSD: A Checklist for Skeptical Thinking

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There are many questionable alternative treatment approaches that are heavily marketed and promoted but have no evidence to support their use. Even experienced clinicians frequently resort to these fad or alternative treatments...in other words, they “get quacked” into using them. Quackery is a type of pseudoscience because it is a practice or remedy that has no compelling scientific basis; it includes questionable ideas, products and services. Clinicians may get quacked because they are not being appropriately skeptical or they do not have the tools to help distinguish between science and pseudoscience. Below is a checklist that can help clinicians evaluate claims made by promoters of products or services to help determine if they are based on scientific principles or on pseudoscience.

Healthy Debate About the Therapy	
The debates and discussions are about efficacy findings/data	The debates usually are not about data, but instead about beliefs and opinions
<input type="checkbox"/> Science	<input type="checkbox"/> Pseudoscience

Information is Peer-Reviewed	
Anonymous (blinded), impartial refereeing of data/findings	No peer review or only quasi/pseudo peer review of the findings
<input type="checkbox"/> Science	<input type="checkbox"/> Pseudoscience

Quantifiable Data are Used	
Data are quantitative, gathered following the scientific method	Data are qualitative, based on expert opinion
<input type="checkbox"/> Science	<input type="checkbox"/> Pseudoscience

Higher level studies tested the procedure	
Higher level studies tested the procedure	Data are testimonials and case studies
<input type="checkbox"/> Science	<input type="checkbox"/> Pseudoscience

Independent Confirmation of Findings	
Independent because the researchers are not connected to the therapy	No independent confirmation by impartial reviewers
<input type="checkbox"/> Science	<input type="checkbox"/> Pseudoscience

Valid Data are Disseminated	
Information is presented at conferences that use peer-review and scientific standards	Information is presented at CEU events and other non peer-reviewed conferences
<input type="checkbox"/> Science	<input type="checkbox"/> Pseudoscience
Information and data are presented in reputable journals	Information appears in self-published books or in the popular press
<input type="checkbox"/> Science	<input type="checkbox"/> Pseudoscience
Information is found on trustworthy, professional websites	Information is on proprietary, self-developed websites
<input type="checkbox"/> Science	<input type="checkbox"/> Pseudoscience
Valid and reliable data are presented in prominent spots on the webpage	Websites reporting findings have a testimonial section for hearsay but no research section
<input type="checkbox"/> Science	<input type="checkbox"/> Pseudoscience

Scientific Method is Followed	
Data obtained follow the scientific method to determine effectiveness	Use only clinician experience and judgments as the “best way” to determine effectiveness
<input type="checkbox"/> Science	<input type="checkbox"/> Pseudoscience
Data are gathered by professionals who are qualified to study clinical questions	Implicit disdain for researchers because of the belief that “only clinicians really understand clinical work”
<input type="checkbox"/> Science	<input type="checkbox"/> Pseudoscience

Results Have Theoretical Explanations	
Theoretical models explain why therapy works	Poorly defined theoretical models for explanation of why a procedure is effective
<input type="checkbox"/> Science	<input type="checkbox"/> Pseudoscience
Every link in the chain of explanation is connected	Gaps and missing information break the chain of plausibility
<input type="checkbox"/> Science	<input type="checkbox"/> Pseudoscience

Use of Historical Data	
Appropriate reporting of prior data relevant to the therapy <input type="checkbox"/> Science	Claims of effectiveness because it has been done a long time in the field (e.g., "Van Riper said...") <input type="checkbox"/> Pseudoscience
Correct referencing of historical researchers and their findings <input type="checkbox"/> Science	Claims of effectiveness only because of extensive clinical experience of clinician <input type="checkbox"/> Pseudoscience
Unbiased and honest reporting of the pros and cons of a procedure <input type="checkbox"/> Science	Claims of effectiveness because of promoter's authority or charismatic nature <input type="checkbox"/> Pseudoscience
Appropriate use of data and theories from multiple perspectives <input type="checkbox"/> Science	Only use information from outside the field because "other fields know better" <input type="checkbox"/> Pseudoscience

Both Misses and Hits are Counted	
Candid about when a procedure is and is not effective <input type="checkbox"/> Science	Data ignored when a procedure does not work but referred to when it does work <input type="checkbox"/> Pseudoscience
Disproving evidence is not ignored <input type="checkbox"/> Science	Practice remains unchanged even with disproving evidence <input type="checkbox"/> Pseudoscience

Terms and Concepts are Standard and Conventional	
Use of terms that are agreed upon by the scholarly community <input type="checkbox"/> Science	New terms are created that are neither scientific nor conventional ("pseudoscientific jargon") <input type="checkbox"/> Pseudoscience

Results are "Too Good to be True"	
Findings are specific for when and with whom a procedure may work <input type="checkbox"/> Science	Claims of effectiveness for a wide range of clients with unrelated problems <input type="checkbox"/> Pseudoscience
Objective terms about effectiveness for specific populations are stated <input type="checkbox"/> Science	Claims appeal to fears or wishful thinking about effectiveness or cure <input type="checkbox"/> Pseudoscience
Well-defined target population <input type="checkbox"/> Science	Treatment often focused on desperate clients (e.g., highly involved, severely impaired, difficult to teach, etc.) <input type="checkbox"/> Pseudoscience
Non-subjective terms describe effectiveness <input type="checkbox"/> Science	Use hyperbole such as: "results in minutes," "miracle cure," "problem solved" <input type="checkbox"/> Pseudoscience

References
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Disclosure Statement
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