Clinical Curiosity in Psychiatric Residency Training: Implications for Education and Practice

Joel Yager¹ • Jerald Kay²

Received: 19 August 2019 / Accepted: 2 October 2019 / Published online: 30 October 2019
© Academic Psychiatry 2019

Years of experience as psychiatric educators have led us to certain distinct impressions regarding clinical curiosity in trainees. First, some trainees simply seem to be generally more curious than others—they display more “trait” curiosity. Second, some are curious about virtually everything and some mostly about particulars—psychosocial issues, biological issues, relationships, explanations, mechanisms, and/or potential interventions, whereas others seem content to know just enough to get their work done.

These observations and impressions have made us—well—increasingly curious about clinical curiosity and its potential impacts on education, quality of care, and outcomes. Although curiosity is clearly recognized as a desirable trait by medical and psychiatric educators [1–3], cited among attributes of professionalism in the Accreditation Council for Graduate Medical Education psychiatry milestone’s project’s assessment tools [4], this paper offers what we believe to be the first detailed explorations of phenomena and hypotheses related to clinical curiosity specifically addressing psychiatric education and practice.

Curiosity

Curiosity is a basic motivation to sense, experience, explore, and understand something which is unfamiliar, regardless of whether a tangible extrinsic reward might be attached. Basic sub-characteristics include *perceptual* (or *sensory*) *curiosity*, in which satisfaction is derived from exploring new sensations and novel stimuli, satisfactions which wear off with time, and

epistemic curiosity, associated with a quest for knowledge, information seeking, and deeper understanding [5]. Appearing as general *traits*, these characteristics also comprise modifiable *states* that fluctuate over time and circumstance [6].

In turn, *epistemic curiosity* has been subdivided into *diversive curiosity*, referring to general, broad thirst for knowledge, and *specific curiosity*, about particular stimuli (e.g., social curiosity) [5, 7]. Diverive curiosity’s broad information seeking and learning can be gauged by assessing *divergent thinking*, characterized by idea fluency (number of ideas generated) and flexibility (how different the ideas are from one another) [8], whereas specific curiosity is exemplified by desires to engage and solve particular puzzles, stemming from needs to reduce uncertainty, and achieve mastery. Epistemic curiosity can generate or discover hypothetical possibilities (perhaps linked to capacities to imaginatively conjecture and explore “idea spaces”), and test competing hypotheses, to better ascertain probabilities or truths [8].

Curiosity can be the source of its own pleasure; learning for its own sake yields dopamine rewards [9]. It may also emerge from frustrations about being ignorant or uncertain. Although strongly related, these sources of epistemic curiosity have generated two subtypes: *Interest-type curiosity* (*I-type*) involves anticipated joy and pleasure involved in learning and mastery, whereas *Deprivation-type curiosity* (*D-type*), concerned with reducing unpleasant states of uncertainty and ignorance and satisfying the “need to know,” is related to solving problems, performance, and avoiding failure [10].

Measures of general epistemic curiosity and specific social curiosity roughly correlate with measures of general intelligence [11] and education [12]. Assessments of epistemic curiosity’s pleasure in learning and mastery (“Interest”, type I) have employed Likert scale items such as “I enjoy exploring new ideas,” “I enjoy learning about subjects that are unfamiliar to me,” “I find it fascinating to learn new information,” “When I learn something new I like to find out more about it,” and “I enjoy discussing abstract concepts.”

✉ Joel Yager
joel.yager@CUAnschutz.edu

¹ University of Colorado School of Medicine, Aurora, CO, USA

² Boonshoft School of Medicine, Wright State University, Dayton, OH, USA

Assessments of deprivation (type D) epistemic curiosity, associated with specific problem solving, performance concerns, and avoiding failure, have employed items such as “I spend hours on a problem because I cannot rest without finding an answer,” “Conceptual problems keep me awake thinking about solutions,” “I feel frustrated if I cannot figure out a problem, so I work even harder,” “I work like a fiend at problems that I feel must be solved,” and “I brood for a long time to solve a problem” [13, 14].

Social curiosity has been assessed using items such as “When I meet a new person, I am interested in learning more about him/her,” “I’m interested in people,” “I find it fascinating to get know new people,” “I like to learn about the habits of others,” “I like finding out about how others “work,”” “I am interested in other people’s thoughts and feelings,” and “Other people’s life stories interest me” [15].

Individuals differ not only in the breadth and depth of their curiosity [16, 17] but also according to domains of life experience that specifically interest them—psychological, interpersonal, social, financial, scientific, mathematical, physical mechanisms, somatic-physical, aesthetic, spiritual, etc. [18]. Tendencies toward curiosity within specific domains might link to discrete types of intelligence [19]; for example, strong social curiosity might associate with strong personal intelligence [19] or emotional intelligence [20].

Overall, individual curiosity differs by who people are (personality and values), what people do, and how they function [18]. Using suitable batteries of scales assessing these dimensions in three large populations, Kashdan et al. [18] derived five dimensions of curiosity:

- *Joyous exploration*: open to experience, possess strong personal growth initiative, tenacious in pursuing opportunities to learn and grow, and derive pleasure and meaning from learning new information and experiences
- *Deprivation sensitivity*: discomfort at not knowing, urge to reduce this tension by eliminating knowledge gaps and problem solving, and often concerning abstract and complex problems
- *Stress tolerance*: less deterred than others by stresses of exploring, embracing anxiety of the unknown, and therefore less likely to avoid exploration
- *Social curiosity*: by means of observing and questioning, want to know what other people are thinking or doing, and may be more prone to gossip
- *Thrill seeking*: looking for novel, intense, varied experiences, hedonistic, possibly impulsive, and associated with being effective in volatile environments

In a representative population sample, these dimensions yielded four general “person-centric” clusters, describing how individuals generally experience and express curiosity: *Fascinated* (28% of population);

Problem solvers (28%); *Empathizers* (25%); and *Avoiders* (19%).

Clinical Curiosity

With this background and vocabulary in mind, we define clinical curiosity as both general (diversive) and specific curiosity directed by health professionals to understanding and solving problems related to patient care. Clinical curiosity reflects “questing” for information about patients, their conditions, and processes and contexts affecting treatments and prognosis—desires and pleasures related to inquiring, and satisfactions of solving specific puzzles that patients present. Clinical curiosity encompasses both broad epistemic curiosity (both type I and type D seem pertinent) and specific curiosities regarding people (social curiosity) and science (biology, chemistry, social sciences). As Dyche and Epstein note³, in medical education, curiosity is a bridge to knowledge and problem solving, critical thinking, and self-assessment.

Although thoughtful considerations concerning relationships among curiosity, medical education, and clinical practice have been published [1–3, 21], to our knowledge, none has directly addressed curiosity in psychiatric training. The few formal studies we found, limited exclusively to medical student education, constitute preliminary investigations [22–24]. Notably, displays of curiosity by medical students are associated with achieving clinical honors on clerkships [25].

Clinical Curiosity in Psychiatric Residency Training

We have observed that clinical curiosity varies considerably among psychiatric trainees (and medical students with other career interests) with respect to breadth, depth, and domain. Compared with other fields of medicine, psychiatry seems more likely to attract trainees with strong social curiosity. Further, although clearly overgeneralizing, we conjecture that psychiatrists and primary care generalists may incline to diversive curiosity whereas subspecialists incline toward specific curiosities. However, individuals’ curiosities might also be iteratively affected by career choice; although narrower fields might attract trainees with narrower curiosities, trainees’ curiosity patterns might simultaneously be shaped by their fields.

In our experience, the most exciting and effective psychiatric trainees embody *biopsychosocial curiosity*. They show strong diversive (both type I and type D) curiosity about bio and psycho and social domains, love inquiry, and desire to know how these domains interactively affect one another; patients and their families present interesting puzzles they enjoy solving—and concerning which they do not want to err.

We suspect that such clinically curious trainees might conduct more thorough inquiries and workups; faced with uncertainties or unconventional clinical patterns, they might also be likelier to consider unusual “zebras” and more diligently track down additional information.

We also postulate that biopsychosocially clinically curious trainees tend to know more about their patients, asking more questions and follow-up questions, and pursuing more leads. Their knowledge base ordinarily appears broader and deeper—about the patient’s history, condition, and circumstances, and about their management in general. Furthermore, biopsychosocially clinically curious trainees seem better able to tolerate ambiguity (not prematurely jumping to conclusions while gathering information), contributing to another significant characteristic of the effectively curious psychiatrist, the acquisition of humility.

Curious trainees also seem more likely to read about their patients’ conditions and treatments, contributing to clinical formulations, differential diagnoses, and treatment plans that are often more sophisticated. These qualities of curiosity seem central to developing the clinical wisdom that ultimately distinguishes psychiatric experts that “walk on water” from ordinarily competent practitioners [26]. (Of course, expert psychiatrists also know their limitations and know how to budget time wisely, make quick decisions when necessary, and deal respectfully and sensitively with patients who might decline being extensively probed primarily to satisfy the clinician’s curiosity.)

But, curiosity in one realm does not assure curiosity in another. Some trainees are biologically curious but less psychologically or socially curious; some show greater psychological or social but less biological curiosity.

Biologically curious trainees may be likelier to obtain more detailed genetic, family, developmental, and medical histories, seek old records, and consider laboratory testing or medical-neurological consultations.

Psychologically curious trainees may generate more personally probing questions in interviews, acquiring more nuanced details about their patients’ inner experiences.

Socially curious trainees may be more likely to interview families and friends, and show greater interest in family and group processes, learning more about their patients’ interpersonal relationships, social, cultural, religious, vocational, and financial worlds.

Self-reflective Curiosity in Psychiatric Education

Beyond curiosity about patients, self-reflective curiosity addresses questions concerning how trainees’ own past positive and adverse experiences have impacted memory and learning, shaped present feeling about themselves and their worlds, and

in turn influence how they respond to people, including patients, and events. Self-reflective curiosity may enhance self-knowledge, helping trainees better understand how they, as well as their patients, may experience feeling and behave for reasons outside of their awareness, possibly in repeatedly self-defeating ways. We suspect that self-reflective curiosity might enhance trainees’ abilities to develop effective doctor-patient relationships, facilitating empathic non-judgmental relationships with patients who might otherwise seduce, intimidate, or enrage them, enabling them to better understand the genesis of their feelings about patients and how patients might characteristically evoke particular responses in others outside the care relationship. Self-reflective curiosity might also contribute to trainees’ abilities to own and repair therapeutic ruptures to which they might have contributed.

Practical Assessment of Clinical Curiosity in Applicants and Trainees

If clinical curiosity is a desirable trait, educators might attend to its presence in applicants and trainees. Since published curiosity scales are not suitable for routine administration, educators might pose questions during interviews concerning why applicants are interested in psychiatry, aspects of psychiatry they find most interesting, questions about psychiatry that occur to them, and how they envision pursuing their curiosities. Interviewers might also present clinical scenarios, asking about additional questions occurring to applicants relative to these situations. Responses to these questions might provide crude estimates of the breadth, depth, fluency, and flexibility of applicants’ capacities for clinical curiosity.

Supervisors can routinely appraise clinical curiosity in enrolled trainees by observing them interview and discuss patients, seeing how they reflect on what they know and do not know, and what they see as remaining gaps. What further questions occur to them to ask? What do they wonder about?

Incurious Trainees

In contrast, incurious trainees obtain much less information about their patients; it may never occur to them to ask certain (seemingly obvious) questions. Their information might be limited to the basics needed for DSM diagnosis; they may miss the patient’s uniqueness. They seem less inclined to be inquisitive or to bother assessing inconsistencies, uncertainties, or unknowns. Their differential diagnoses, clinical formulations, and treatment plans may seem “cook book” and pedestrian.

Their patients more often seem to feel objectified, responding to yes or no answers. While qualifying for passing grades of competence, far from excellent, they are not the

practitioners to whom faculty would ordinarily refer their own family members.

Furthermore, unable to appreciate what they do not know, incurious trainees who seem to believe they “know it all”—or know enough—may hubristically generate unnecessarily unpleasant, even contentious interactions, with patients. These residents are invariably challenging to teach.

What Might Account for Deficient Displays of Curiosity?

The types of incuriosity noted above primarily relate to trait attributes, attached to individual temperament and personality. Several circumstances may also alter state curiosity.

First, personal and cultural inhibitions particular to the trainee. Trainees might pre- or subconsciously suppress or prohibit themselves from being curious about certain issues due to personal inhibitions or conflicts (variably related to shame, guilt, rage, embarrassment, fears connected to personal traumas, and disappointments), overconfidence, or increasing impulsivity under time pressure. For some, cultural taboos inhibit or prohibit asking about another person’s thoughts or experiences concerning personal issues ranging from sex to death. Trainees who are depressed, bored, or burned out are less likely to be curious.

Second, as enumerated by Dyche and Epstein [3], certain variant or invariant characteristics of work environments can suppress curiosity. Clinicians who display much more curiosity under relaxed circumstances might find themselves deliberately not asking many questions when facing huge case-loads, under considerable time pressure, and when they are exhausted. There are always trade-offs.

Third, educators who model limited curiosity, who indicate that certain questions are beyond the scope of what is necessary to care for the patient or are otherwise out-of-bounds, may authorize trainees to slack off in their curiosity and questioning.

How Specific Educators, Teaching Methods, and Clinical Settings Foster or Inhibit Clinical Curiosity in Psychiatric Trainees

Not surprisingly, clinical curiosity may be dampened when trainees are subjected to closed-minded faculty, deadly boring lectures, and insufficient time allotted for patient visits because of service pressures.

Several teaching styles might stifle clinical curiosity: Supervisors who disparage patients with certain symptomatology, suggesting, for example, that patients with personality or substance use disorders are largely untreatable, can inject trainees with pessimistic fatalism about these conditions.

Similarly, supervisors who discourage treatment of certain patients because of their personal prejudices (e.g., related to gender issues, homelessness, or religious fundamentalism) may discourage clinical curiosity about these populations. Supervisors who insist on only one theoretical approach to understanding and treating patients (e.g., purely biological or purely psychodynamic) can dampen curiosity and foster a sense of (false) competence in trainees who, without reflection, might parrot these supervisors’ party lines while inadequately questioning their limitations. Supervisors who focus exclusively on DSM diagnoses to the exclusion of learning about the person behind the “case,” as sometimes occurs in case conferences or certain didactics, can discourage curiosity. Conceivably, for some teachers (and/or trainees, themselves), certain topics may be taboo—too controversial to consider or at least discuss publicly—due to perceived “political incorrectness” or “inappropriateness.”

In contrast, educational approaches that encourage clinical curiosity include problem-based learning [27, 28], Socratic questioning, and providing time to reflect. Educators can model their own curiosity, by sharing their own uncertainties, their messy clinical experiences, and how they pursue answers, and by displaying their remaining unanswered, unresolved, and perplexing questions. These demonstrations can help trainees appreciate that every clinician faces challenges that are not always handled optimally, and that persistent inquiry should be a way of professional life.

What are Appropriate Boundaries for Clinical Curiosity?

Since unfettered curiosity can apparently kill cats, unrestrained curiosity must have its downsides. First, unless clinicians keep grounded and focused, idle or tangential curiosity might lead to endless rabbit-warrens, places where, for example, Google or PubMed searches might lead to wasted hours scouring information irrelevant to issues at hand. Trainees constantly trade-off between satisfying idle curiosity and focusing on patient care: extraneous curiosity might counterbalance efficient and effective treatment.

Second, misplaced curiosity can reflect poor judgment or prurient interests serving clinicians’ private gratifications. If clinicians indulge curiosity tied to personal quirks, for example voyeurism regarding sexual practices, or gossip, or celebrity, or private finances, inquiries might delve into inappropriate areas irrelevant to problems for which patients are seeking assistance.

Third, ethical “gray areas” surround how curious clinicians should deal with the significant amounts of personal information about patients now available on-line, discoverable with small amounts of sleuthing. Many argue that clinicians should never search for information about patients on-line. Some

justify such actions as equivalent to obtaining collateral information from friends and relatives (ordinarily only after obtaining permission from agreeable patients). While settling this controversy is beyond the scope of this paper, its existence must be acknowledged.

Further Research and Implications

The broader study of curiosity has numerous implications for philosophy, language, and education [29], many of which bear on curiosity in medical settings. Our impressions, hunches, and anecdotal observations concerning clinical curiosity comprise a long list of quasi-testable hypotheses, some of which might merit further scrutiny. If, in fact, clinical curiosity can be shown to impact the quality of doctor-patient relationships, patient satisfaction, and clinical outcomes as we surmise, educators will want to pay more explicit attention to this quality in trainee selection. They will also want to influence teachers, educational methods, and clinical training settings in ways that will enhance rather than suppress trainees' desires to express and satisfy their clinical curiosity.

Compliance with Ethical Standards

Conflict of Interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

References

1. Fitzgerald FT. Curiosity. *Ann Intern Med*. 1999;130:70–2.
2. Roman B, Kay J. Fostering curiosity: using the educator-learner relationship to promote a facilitative learning environment. *Psychiatry*. 2007;70:205–8.
3. Dyche L, Epstein RM. Curiosity and medical education. *Med Educ*. 2011;45:663–8. <https://doi.org/10.1111/j.1365-2923.2011.03944>.
4. Accreditation Council on Graduate Medical Education. Psychiatric Milestone's Project <https://www.acgme.org/Portals/0/PDFs/Milestones/PsychiatryAssessmentTools.pdf?ver=2015-11-06-120520-780>. Searched June 28, 2019.
5. Berlyne DE. Curiosity and exploration. *Science*. 1966;153:25–33. <https://doi.org/10.1126/science.153.3731.25>.
6. Spielberger CD, Reheiser EC. Assessment of emotions: anxiety, anger, depression, and curiosity. *Appl Psychol*. 2009;1:271–302.
7. Litman JA, Spielberger CD. Measuring epistemic curiosity and its diverse and specific components. *J Pers Assess*. 2003;80:75–86.
8. Hagtvedt LP, Dossinger K, Harrison SH, Huang L. Curiosity made the cat more creative: specific curiosity as a driver of creativity. *Organ Behav Hum Decis Process*. 2019;150:1–13.
9. Kobayashi K, Hsu M. Common neural code for reward and information value. *Proc Natl Acad Sci U S A*. 2019;201820145. <https://doi.org/10.1073/pnas.1820145116>.
10. Litman JA, Silvia PJ. The latent structure of trait curiosity: evidence for interest and deprivation curiosity dimensions. *J Pers Assess*. 2006;86:318–28.
11. Moutafi J, Furnham A, Crump J. What facets of openness and conscientiousness predict fluid intelligence score? *Learn Individ Differ*. 2006;16:31–42. <https://doi.org/10.1016/j.lindif.2005.06.003>.
12. Litman JA, Crowson HM, Kolinski K. Validity of the interest- and deprivation-type epistemic curiosity distinction in non-students. *Personal Individ Differ*. 2010;40:531–6. <https://doi.org/10.1016/j.paid.2010.05.021>.
13. Litman JA, Jimerson TL. The measurement of curiosity as a feeling of deprivation. *J Pers Assess*. 2004;82:147–57.
14. Litman JA. Interest and deprivation factors of epistemic curiosity. *Personal Individ Differ*. 2008;44:1585–95. <https://doi.org/10.1016/j.paid.2008.01.014>.
15. Renner B. Curiosity about people: the development of a social curiosity measure in adults. *J Pers Assess*. 2006;87:305–16.
16. Langevin R. Is curiosity a unitary construct? *Can J Psychol*. 1971;25:360–74.
17. Ainley MD. The factor structure of curiosity measures: breadth and depth of interest curiosity styles. *Aust J Psychol*. 1987;39:53–9.
18. Kashdan TB, Stikma MC, Disabato DJ, McKnight PE, Bekier J, Kaji J, et al. The five-dimensional curiosity scale: capturing the bandwidth of curiosity and identifying four unique subgroups of curious people. *J Res Pers*. 2018;73:130–49. <https://doi.org/10.1016/j.jrp.2017.11.011>.
19. Gardner H. Taking a multiple intelligences (MI) perspective. *Behav Brain Sci*. 2017 Jan;40:e203. <https://doi.org/10.1017/S0140525X1600163>.
20. Cherry MG, Fletcher I, O'Sullivan H, Dorman T. Emotional intelligence in medical education: a critical review. *Med Educ*. 2014;48:468–78. <https://doi.org/10.1111/medu.12406>.
21. Roman B. Curiosity: a best practice in education. *Med Educ*. 2011;45:654–6. <https://doi.org/10.1111/j.1365-2923.2011.04017.x>.
22. Richards JB, Litman J, Roberts DH. Performance characteristics of measurement instruments of epistemic curiosity in third-year medical students. *Med Sci Educ*. 2013;23:355–63.
23. Sternszus R, Saroyan A, Steinert Y. Describing medical student curiosity across a four year curriculum: an exploratory study. *Med Teach*. 2017;39:377–82. <https://doi.org/10.1080/0142159X.2017.1290793> Epub 2017 Feb 19.
24. Ommering BW, van Blankenstein FM, Waaijer CJF, Dekker FW. Future physician-scientists: could we catch them young? Factors influencing intrinsic and extrinsic motivation for research among first-year medical students. *Perspect Med Educ*. 2018;7:248–55. <https://doi.org/10.1007/s40037-018-0440-y>.
25. Herrera LN, Khodadadi R, Schmit E, Willig J, Hoellein A, Knudson C, et al. Which student characteristics are most important in determining clinical honors in clerkships? A teaching ward attending perspective. *Acad Med*. 2019. <https://doi.org/10.1097/ACM.0000000000002836>.
26. McClelland DC. Testing for competence rather than for "intelligence". *Am Psychol*. 1973;28:1–14.
27. Mennin SP, Kalishman S, Friedman M, Pathak D, Snyder J. A survey of graduates in practice from the University of New Mexico's conventional and community-oriented, problem-based tracks. *Acad Med*. 1996;71:1079–89.
28. Heru AM. Teaching psychosomatic medicine using problem-based learning and role-playing. *Acad Psychiatry*. 2011;35:245–8. <https://doi.org/10.1176/appi.ap.35.4.245>.
29. Inan I, Watson L, Whitcomb D, Yigit S, editors. *The moral psychology of curiosity*. London: Rowman & Littlefield International; 2018.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.