# Psychotherapy in the Digital Age: What We Can Learn From Interpersonal Psychotherapy

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The digital age poses new challenges for psychotherapy. More than four billion people worldwide use the Internet, and most of them engage with social media. Therapists are increasingly asked to help patients navigate the complex interface between online technology and relationships, but few are prepared to address this issue therapeutically. Interpersonal psychotherapy (IPT) is an evidence-based psychotherapy for depression and is focused on addressing interpersonal problems. The authors use the IPT framework to explore how therapists can discuss, during in-person sessions, the impact of technology on communication and relationships. The authors describe how therapists can preserve IPT's overarching goal of resolving interpersonal problems by adapting specific techniques to meet the needs of patients who routinely rely on technology to connect with others. Case vignettes illustrate techniques used to evaluate and modify technology-based communication, including problematic text-based interactions. Recommendations are provided for therapists seeking to meet the interpersonal needs of patients in the digital age.

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Virtual relationships, communities, and communication are the new normal for today's digital society. More than four billion people worldwide use the Internet, and most of them engage in social media and text messaging. In the United States, the average user spends more than 2 hours per day online, and this time is likely to increase. Three of the top five social media platforms are messenger or chat apps (1), which facilitate communication between two or more people. Digital relationships may exist solely online or both online and in real life.

Despite or perhaps because of pervasive engagement with digital technology, isolation and loneliness are rampant throughout the developed world (2–4), placing individuals at increased risk for psychiatric disorders and poor health outcomes, including depression (5, 6), cardiovascular disease (7), and all-cause mortality (8). People who have meaningful in-person relationships experience better mental and physical health than those who lack social connections (9, 10) or whose relationships exist primarily online (2). Technology-based interactions do not appear to confer the same benefits associated with in-person human contact, nor do they strengthen emotional ties with offline contacts (11). More time online and more social media use do not substitute for in-person contact (12) and are associated with worse, not better, mental health (13–15). Evidence suggests that excess use of social media increases feelings of isolation and enables avoidance of in-person social contact (16–18), especially among individuals with depression (19). Virtual relationships do not address the physical and mental health risks associated with social isolation and loneliness, because they lack essential elements from the three-dimensional experiences that are key to human connectedness, such as real-time reciprocity, nonverbal and paraverbal cues, and the neurohormonal signaling that occurs with physical proximity (20, 21). Yet, disconnecting, or "unplugging," from the virtual world and "textosphere" may be unrealistic for many in the digital age.

Against this backdrop, the virtual world increasingly emerges as a relevant issue in psychotherapy sessions as patients seek help in navigating digital relationships and technology use. Yet, few therapists are professionally prepared to assist in this arena. Many manuals for evidence-based psychotherapies, including interpersonal psychotherapy (IPT), were written before the advent of the Internet (15). How should therapists address virtual relationships, communities, and communication in psychotherapy? How do therapists reconcile a virtual world that is perceived by some as filling a need for connection, affiliation, and affirmation but also creates emptiness and loneliness? How do therapists address excessive social media use, limited in-person contact, and use of text messaging to avoid others?

In this article, the authors grapple with these questions within the framework of IPT. IPT is an evidence-based psychotherapy for depression that focuses on addressing

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interpersonal problems (22). Therapists attend to links between mood and interpersonal events, with an emphasis on improving interpersonal relationships. IPT is thought to ameliorate depression, at least in part, by enhancing social contacts and increasing social support (23). Because of its focus on interpersonal connections, IPT is potentially well-suited to provide a useful framework for working with digital relationships and communications in the context of psychotherapy for patients with depression. In this article, we briefly review IPT, identify key IPT strategies focused on improving interpersonal communication and social networks, and discuss how therapists can use IPT strategies to help patients enhance their digital, as well as in-person, relationships and communications. We conclude with general suggestions for therapists seeking to meet the needs of patients in the digital age.

## WHAT IS IPT?

Originally developed as a time-limited treatment for depression, IPT focuses on a discrete interpersonal problem linked to the onset or maintenance of a recent depressive episode (22). IPT defines four possible interpersonal problem areas as potential foci of therapy: grief, role transitions, role disputes, and interpersonal deficits. Therapists choose an IPT problem area that is emotionally meaningful to the patient, temporally related to the current mood episode, and addressable using interpersonally focused strategies over 12 to 16 weeks. Therapy sessions are devoted to helping the individual resolve the identified interpersonal problem area by facilitating adaptation to new social roles, improving communication skills, and building social support networks. For more information about IPT, see the website of the International Society for Interpersonal Psychotherapy (www.interpersonalpsychotherapy.org).

## THE DIGITAL AGE AND KEY IPT STRATEGIES

Digital technology may affect implementation of several core IPT strategies, including the sick role, interpersonal inventory, communication analysis, and role-playing. In this section, we briefly describe each strategy and then discuss how use of technology for communication and the presence of digital relationships may affect their therapeutic deployment.

### Sick Role

During the initial sessions of IPT, therapists give patients the "sick role," a social role that is characterized by having a medical illness (depression) and engaging in activities geared toward health amelioration. The sick role is used to alleviate feelings of guilt about symptoms by providing an explanatory model for them ("depression is a medical illness"). As part of the sick role, patients are excused from obligations they cannot currently fulfill because of their medical illness in order to attend to their health. The assumption, however, is that the sick role is temporary and that when patients feel better, they will resume their usual responsibilities.

Health-promoting in-person contacts are "prescribed" in the context of the sick role, because of their positive effects on health and mood (9, 12). However, if individuals are too depressed to leave the house, unable to go to class, or missing work, they may be unable to engage in scheduled face-to-face activities. As part of assigning the sick role, therapists may temper their recommendations for in-person contacts, suggesting instead that patients engage in interim virtual communication to ease back into their usual interpersonal routines, especially during the early phase of treatment. This message, however, should be balanced with psychoeducation about the risk that excessive reliance on social media and technology may contribute to emergence or perpetuation of depression:

> I know that it has been hard for you to leave the house recently. When you're feeling down, it's normal to cut back on some activities. Just like you would do if you had any other illness, when you're depressed, you may need to lay low temporarily so you can focus on getting well. It's OK for you to stay at home except for going to school, at least for now. Connecting with people can help to improve your depression, so we should be sure you don't lose touch with your friends while you are spending more time at home. Although seeing your friends in person would probably be most helpful for your mood, I understand that you feel very overwhelmed by the idea of meeting with people right now. Can you think of other ways to stay in touch until you're feeling up to going out? Connecting over social media might be a good initial step, until you are feeling a little better.

Temporary engagement with friends over social media may serve as a bridge until the patient is well enough to resume in-person activities. It may also provide opportunities to practice interactions in a graded fashion, preparing the patient for more face-to-face communication. Exclusive reliance on virtual communication should be used as a short-term measure in the context of the sick role, however, because evidence shows that in-person contacts are more beneficial to emotional health than virtual interactions are (6, 11, 12). Over the course of IPT, the therapist would help the patient transition away from digital interactions to more robust in-person engagement.

### Interpersonal Inventory

The interpersonal inventory consists of a careful review of all significant relationships in the patient's life. The therapist

asks open-ended questions, such as, "Who are the important people in your life?" to develop an initial understanding of significant relationships. Follow-up questions are used to learn about family of origin, social supports, romantic relationships, recent deaths, changes in vocational status, changes in health status, changes in housing, and conflictual relationships.

When conducting an interpersonal inventory, therapists should assess both virtual and in-person relationships. Systematic inquiry about engagement with social media platforms and virtual communities, preferred apps for online communication, and the role of digital relationships in the patient's interpersonal life facilitates understanding of the patient's digital life. This information will be used to assess the quality of the patient's relationships, both virtual and live, and to lay the groundwork for expanding the patient's in-person social network and addressing impaired communication skills, if needed, during the middle phase of therapy. Some of the following questions may be used to better understand the nature and extent of online interactions: Do you communicate using text messaging or other digital services? Which apps or platforms do you routinely use? Who do you communicate with most often? Is it in real time? In real life? How many hours do you spend online each day? What are your preferred apps? What kinds of things do you talk about on [name of preferred app]? Can you give me an example? Have you ever had a disagreement online? How did that go? How often do you talk with people via video chats? How does that affect the quality of your discussions? How does this compare to your in-person interactions? Do your digital relationships cause problems in your in-person relationships?

After assessing the nature and quality of a patient's online activity, the therapist may determine that some individuals are excessively preoccupied with social media or engage predominantly in digital relationships, perhaps to avoid in-person contact and to the detriment of their mental health. In that case, the therapist should provide psychoeducation about the importance of in-person contact, help the patient develop social skills needed to engage in in-person interactions, and establish a stepwise plan to help the patient reduce time spent on social media and gradually increase in-person contacts.

When learning about significant people in the patient's life, it is important to ask how the patient communicates with these people, whether interactions occur primarily via the Internet or in person, and how they first met. This background gives the therapist information about technology-based relationships that may serve as foci for later work as well as data about the extent and quality of the patient's social network.

Therapist: Tell me more about Juan. How did you meet?

Patient: We used to play *Fortnite* together with some other friends, but then we started chatting on WhatsApp.

Therapist: Do you mostly text or talk?

Patient: We text a bunch during the day, but sometimes we talk at night.

Therapist: Do you talk on the phone?

Patient: No, we video chat on FaceTime. He and I like to share memes with each other and talk about stuff that happened at school.

Therapist: It sounds like he's supportive.

Patient: Yeah, there aren't any other trans kids in my high school. It's nice to talk with someone who gets it.

Therapist: When you're having a rough time, is he someone you can be open with?

Patient: Yeah, he's cool.

Therapist: Do you mean that you can open the computer and FaceTime with Juan if you're feeling down?

Patient: I'd rather text, but yeah, if I asked him to FaceTime, he would.

Therapist: Have you ever met Juan in real life?

Patient: No, he lives really far away.

Therapist: Do you consider him a good friend?

Patient: Yeah, for sure.

Therapist: Does he know that you've been depressed?

Patient: Uh-huh. He's been depressed too, so he gets it.

Although Juan and the patient have never met in person, they seem to have a close and confiding relationship. They met playing online video games, but the connection has matured into a dyadic, supportive bond that contributes significantly to the patient's social network. Juan is someone the patient relies on for emotional support. In general, the therapist should strive to bolster the patient's in-person relationships during IPT but should also understand and respect the role of digital relationships in the patient's social support system when they are characterized by reciprocity and authenticity.

### Communication Analysis

Communication analysis is a technique used in IPT to evaluate and ultimately to modify patients' problematic communication patterns. When conducting a communication analysis, therapists elicit detailed information from patients about a recent, affectively meaningful conversation with a significant person. Therapists ask patients what they hoped or intended to communicate to the other person; how they felt during the exchange; and what they believe the other person heard, understood, and felt. To evaluate the quality of the communication itself, therapists ask about verbal communication (what was said), paraverbal communication (how it was said, including tone of voice, pitch, volume), and nonverbal communication (gestures, body posture, eye contact). To reconstruct the exchange, therapists inquire

about the setting (location, time of day, who else was present) and emotional state of the participants. After the interaction is reconstructed, therapists point out successful and maladaptive aspects of the communication, encourage patients to take another's perspective (e.g., how do you think your partner felt when you said that?), and make suggestions for modifying faulty communication.

Text-based conversations are common and form the basis of many interpersonal exchanges in today's digital world. Unlike in-person interactions, text-based communications are stripped of important sources of information, including paraverbal and nonverbal modifiers. The phrase, "you're right" can mean one thing when spoken in a raised voice and paired with a sneering grimace and another when spoken in soft voice, accompanied by a smile. Emojis, capital letters, and punctuation are used as modifiers; however, they lack the range and specificity of human voice and body cues and therefore can be easily misinterpreted. Thus, text-based communication conveys only a small portion of the information that would usually be communicated in face-to-face exchanges. The resulting conversation, especially among individuals with underlying risk factors for poor communication, such as psychiatric illness or low literacy, may result in miscommunication. Yet, many patients rely heavily, if not exclusively, on text-based communication for important discussions about relationships. Engaging patients in discussions about their text-based exchanges can be conceptualized as a modified communication analysis in IPT. Such analysis may help therapists to better understand problematic communication patterns, help patients better appreciate potential limitations of text-based exchanges, and allow therapists and patients to understand the impact of technologies on important relationships.

Therapist: Did your fight with Trey take place entirely by text messages?

Patient: Yes.

Therapist: Ok. Let's look at the messages. Can you pull them up on your phone?

[Patient shows therapist the messages on her phone.]

Therapist: What were you trying to tell him through this exchange of messages?

Patient: That I need him to be more present in the lives of our kids. That I want him to interact with Jerrold and Deshawn, not just bury his nose in his phone.

Therapist: What do you think he understood from these texts?

Patient: That I am pissed off at him.

Therapist: Let's take a closer look at what you wrote. "When u coming home? Planning to sit on couch? LOL." He responded by writing, "I cannot even." What did that text mean?

Patient: He was just blowing me off, like he usually does.

Therapist: Blowing you off? You mean that he didn't want to hear what you had to say?

Patient: Yeah, it was like a politer way of saying, "[expletive] you."

Therapist: How did you feel when you read that?

Patient: Angry. He knows I want him to come home early so he can be with the kids.

Therapist: I wonder, though, if that's what he understood from what you wrote. How might he have felt when he read "Planning to sit on couch? LOL"?

Patient: Well, that's what he does every night. Sit on the couch. Playing those video games.

Therapist: It is hard to tell with a text whether you are being teasing or sarcastic or just plain mean. What was your intention here?

Patient: I guess all of those things.

Therapist: Where were you when you wrote these texts?

Patient: At work.

Therapist: Were you in a hurry when you wrote them?

Patient: Yeah, my boss doesn't like us to use our phones during work.

Therapist: It sounds like you wrote the text in a rush. Perhaps as a result, the message was unclear. Maybe he had trouble figuring out what you meant.

Patient: Maybe. He also was at work, so I am not sure how closely he read it.

Therapist: That's also a great point. If he was rushed reading it and wasn't sure what you meant, does that change your interpretation of "I cannot even"?

Patient: Maybe he was fed up by not knowing what I was trying to say and didn't have time to figure it out?

Therapist: It seems that trying to have this conversation by text might have had its limitations. Both of you might have misunderstood the other person.

Patient: Yes, that's a possibility. When you point that out, I guess it's hard to tell what was going on.

Therapist: Do you think the conversation might have been different if you had talked in person?

Asking the patient to share examples of text exchanges in therapy sessions can be extremely helpful. Jointly, patient and therapist can explore both what was written and what was intended to be communicated. When examined objectively, text messages often appear more ambiguous than the writer intended, clarifying for patients the risks associated with using text-based communication for important conversations. Subsequent work might include helping the patient to clarify his or her texts or to reimagine the conversation as a face-to-face encounter, discussing additional communication strategies for expressing needs and wishes more clearly and directly to the other person.

**Role-playing**

Role-playing is a strategy used in IPT to help patients modify maladaptive communication patterns or plan for an upcoming interpersonal interaction that is likely to be difficult or challenging. Role-playing usually follows from a communication analysis and is used to help patients implement changes to improve an interpersonal interaction. Typically, role-playing is conducted by enacting an in-person, face-to-face discussion, with patients playing themselves or the other person and therapists taking the opposite role. Role-playing usually begins with coaching, includes a discussion of goals ("What do you want to convey in this conversation? What do you want your partner to understand?") and communication tips ("It may be a good idea to lead with statements to explain how you feel when he acts this way, such as 'I feel sad when you. . .' rather than using blaming statements, such as 'It's all your fault.'"), and concludes with a homework assignment for the patient to try the new communication approach during the subsequent week.

The goal of role-playing in IPT is to encourage effective in-person communication. However, role-playing can also be used to help patients improve the clarity of their text-based communication and to learn when texting may be most effectively deployed. Role-playing around text-based communication is illustrated below in a continuation of the vignette from the communication analysis section.

Therapist: It sounds like the goal of your text was to ask Trey to come home early so that he could spend more time with Jerrold and Deshawn.

Patient: Yes, and to get his butt off the couch when he's at home.

Therapist: You are worried that if he comes home early, he will spend the time playing video games rather than being with Jerrold and Deshawn.

Patient: Exactly.

Therapist: How might you tell him this?

Patient: I could just say it.

Therapist: Sure, but I'm wondering if it might be helpful for us to practice the conversation once or twice, to figure out the best way for you to say what you want to say. We could practice role-playing the conversation.

Patient: I'd be down to practice, but I still think I'll text him rather than talk to him.

Therapist: Why is that?

Patient: That's just what we do. I mean sometimes we talk, but mostly if I need him to do something, I text him.

Therapist: Maybe we can eventually practice how you might have this conversation in person, because, in many ways, I think it would be more effective. But, for now, since you are more likely to do this by text message, let's strategize together about what you would write.

Patient: That sounds good.

Therapist: How would you communicate to him that you want him to come home early and you want him to play with the kids? What exactly would you write? Show me on your phone, and I'll pretend to text back on my phone as if I were him.

[Therapist and patient can text each other or pretend to text by writing down messages on paper.]

Patient: "Get your butt home tonight before 5 p.m. so you can take care of the rug rats."

Therapist: "In your dreams." Did I get it right? Is this how he would respond?

Patient: Yes, that's about right.

Therapist: Ok. So, then what would you text?

Patient: "I mean it. Jerrold and Deshawn need to see their Dad."

Therapist: "They see their Dad all the time. Gotta go."

Patient: I think you must know him! This isn't going anywhere, which is probably what would happen.

Therapist: What could you do differently? Could you tell him how you are feeling?

Patient: I guess so. I could tell him how frustrated I feel.

Therapist: Frustrated? Any other feelings?

Patient: And lonely. It is hard to do this alone.

Therapist: It would be important to tell him that. Why don't I pretend I'm you in this role-playing, and you can be him?

Patient: OK.

Therapist: "I feel really lonely when I am at home with the kids in the evening and you are not there."

Patient: "Tough luck, babe."

Therapist: "Any chance you could come home a little bit earlier tonight to spend time with us? It would make me feel less alone, and I think it would be good for the kids."

Patient: He might respond to that softer approach.

Therapist: Would you be willing to give it a try this week and let me know what happens?

The patient's relationship with Trey would likely benefit from the expressive communication that occurs with in-person interactions. Thus, over time, the therapist would encourage the patient to use less text-based and more in-person communication for important conversations. However, when dyads are accustomed to using remote, asynchronous communication, engaging with the patient to improve the quality of these interactions has the potential to improve the relationship.

**BOX 1. Recommendations for adapting interpersonal psychotherapy for the digital age**

- Routinely inquire about social media use and online relationships to assess the need for intervening with problematic online behaviors and expanding in-person social contacts.
- When patients are acutely ill or have marked impairment in social functioning, use of online platforms may be encouraged temporarily to experiment with social interactions.
- When relevant, ask patients to share examples of text exchanges in sessions and discuss those exchanges with a goal of improving text-based communication. Communication analysis and role-playing with text-based exchanges can be used to help patients gain skills needed to enhance social functioning.
- Help patients understand the limitations of remote, text-based communication. Because text messages are stripped of important sources of information, including paraverbal and nonverbal modifiers, patients should be taught that in-person communication can, with practice, be more impactful than written exchanges.
- Focus on shifting patients toward more in-person connections by encouraging face-to-face interactions (with therapeutic support), but avoid taking an all-or-nothing approach, especially when virtual relationships appear to genuinely fill a need for connection, affiliation, and affirmation.

## DISCUSSION

Increased use of social media has been associated with depression and social isolation in adults (2, 24) and youths (3, 18, 25). In epidemiological studies, more Internet use has been associated with more depressive symptoms (2, 26). Nevertheless, technology is here to stay, and providers of evidence-based psychotherapy must consider how best to adapt proven techniques for the digital age. In IPT, therapists can use records of text-based communications to conduct communication analyses and can include an assessment of digital relationships in the interpersonal inventory. They should also pay attention to the impact of social media on mood, including risk for depression and suicide (6). Therapists can help patients navigate their virtual worlds by highlighting the limitations of digital communications and encouraging in-person communication but also promoting maximally effective use of technologies when appropriate.

Limitations of this article include a focus on IPT only, reliance on the authors' clinical experience to inform recommendations, and emphasis on individuals with depression. Systematic research is needed to determine optimal therapeutic approaches to managing relationships in the digital age, including study of how these issues might be approached differently with other psychotherapy modalities and with a range of demographic groups, including individuals across the lifespan (youth, teens, late life), "digital natives" versus "digital immigrants," and those with and without psychiatric risk factors. Finally, as technologies evolve, so should therapists' approach to managing them. Thus, recommendations may—and should—change over time.

## CONCLUSIONS

Technology has extended the reach of human interactions. It permits individuals to contact friends and family who live far away and creates an almost infinite pool of potential social connections. However, evidence shows that in-person interactions have greater benefit than technology-enabled contact. More time online is associated with worse, not better, mental health outcomes. Therapists should help patients with depression to manage their online lives by optimizing text-based communication and digital relationships and working toward enhanced face-to-face connections. IPT strategies can be adapted to meet these goals in the digital age (Box 1), while retaining IPT's fundamental focus on improving mood by improving interpersonal relationships.

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### REFERENCES

1. Digital in 2018. London, We Are Social, 2018 https://digitalreport.wearesocial.com/download
2. Shakya HB, Christakis NA: Association of Facebook use with compromised well-being: a longitudinal study. Am J Epidemiol 2017; 185:203–211
3. Lin LY, Sidani JE, Shensa A, et al: Association between social media use and depression among US young adults. Depress Anxiety 2016; 33:323–331
4. Murthy V: Work and the loneliness epidemic. Harvard Business Review, Sept 27, 2017
5. Chou KL, Liang K, Sareen J: The association between social isolation and DSM-IV mood, anxiety, and substance use disorders: wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions. J Clin Psychiatry 2011; 72:1468–1476
6. Twenge JM, Cooper AB, Joiner TE, et al: Age, period, and cohort trends in mood disorder indicators and suicide-related outcomes in a nationally representative dataset, 2005–2017. J Abnorm Psychol 2019; 128:185–199
7. Xia N, Li H: Loneliness, social isolation, and cardiovascular health. Antioxid Redox Signal 2018; 28:837–851

8. Steptoe A, Shankar A, Demakakos P, et al: Social isolation, loneliness, and all-cause mortality in older men and women. Proc Natl Acad Sci USA 2013; 110:5797–5801
9. Teo AR, Choi H, Andrea SB, et al: Does mode of contact with different types of social relationships predict depression in older adults? Evidence from a nationally representative survey. J Am Geriatr Soc 2015; 63:2014–2022
10. Gariépy G, Honkaniemi H, Quesnel-Vallée A: Social support and protection from depression: systematic review of current findings in Western countries. Br J Psychiatry 2016; 209:284–293
11. Pollet TV, Roberts SGB, Dunbar RIM: Use of social network sites and instant messaging does not lead to increased offline social network size, or to emotionally closer relationships with offline network members. Cyberpsychol Behav Soc Netw 2011; 14:253–258
12. Shensa A, Sidani JE, Escobar-Viera CG, et al: Real-life closeness of social media contacts and depressive symptoms among university students. J Am Coll Health 2018; 66:747–753
13. Kraut R, Patterson M, Lundmark V, et al: Internet paradox. A social technology that reduces social involvement and psychological well-being? Am Psychol 1998; 53:1017–1031
14. Shensa A, Escobar-Viera CG, Sidani JE, et al: Problematic social media use and depressive symptoms among US young adults: a nationally representative study. Soc Sci Med 2017; 182:150–157
15. Primack BA, Bisbey MA, Shensa A, et al: The association between valence of social media experiences and depressive symptoms. Depress Anxiety 2018; 35:784–794
16. Bessiere K, Kiesler S, Kraut R, et al: Effects of Internet use and social resources on changes in depression. Inf Commun Soc 2008; 11:47–70
17. Vogel EA, Rose JP, Okdie BM, et al: Who compares and despairs? The effect of social comparison orientation on social media use and its outcomes. Pers Individ Dif 2015; 86:249–256
18. Primack BA, Shensa A, Sidani JE, et al: Social media use and perceived social isolation among young adults in the US. Am J Prev Med 2017; 53:1–8
19. Appel H, Gerlach AL, Crusius J: The interplay between Facebook use, social comparison, envy, and depression. Curr Opin Psychol 2016; 9:44–49
20. Helliwell JF, Putnam RD: The social context of well-being. Philos Trans R Soc Lond B Biol Sci 2004; 359:1435–1446
21. Kendrick KM: The neurobiology of social bonds. J Neuroendocrinol 2004; 16:1007–1008
22. Weissman MM, Markowitz JC, Klerman GL: The Guide to Interpersonal Psychotherapy. New York, Oxford University Press, 2018
23. Markowitz JC, Weissman MM: Interpersonal psychotherapy: past, present, and future. Clin Psychol Psychother 2012; 19: 99–105
24. Hajek A, König HH: The association between use of online social networks sites and perceived social isolation among individuals in the second half of life: results based on a nationally representative sample in Germany. BMC Public Health 2019; 19:40
25. Boers E, Afzali MH, Newton N, et al: Association of screen time and depression in adolescence. JAMA Pediatr (Epub ahead of print, July 15, 2019)
26. Bessière K, Pressman S, Kiesler S, et al: Effects of internet use on health and depression: a longitudinal study. J Med Internet Res 2010; 12:e6