



# Therapist disclosure to combat COVID-19 vaccine hesitancy: a narrative review

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**Abstract** With the onset of the COVID-19 pandemic in 2019–2020 and the rapid development of vaccines to prevent this disease came a rise in interest around vaccine hesitancy. Naturally, methods of combatting vaccine hesitancy and increasing vaccination rates are of paramount importance. One such method is building upon the trust and openness of one’s relationship with their healthcare provider. Specifically, this paper examines how psychotherapist self-disclosure could facilitate effective health behaviors in patients, focusing on vaccines. Traditionally, mental health therapists have been encouraged to avoid self-disclosure of personal information due to the possibility of unbalancing or damaging the therapeutic relationship. However, research from medicine and other disciplines suggests that personal recommendation, self-disclosure of vaccination status, and expert encouragement may be effective methods of addressing vaccine hesitancy. In addition, recommendations for therapists in discussing vaccination and in working with vaccine-hesitant patients are provided.

**Keywords** COVID · Vaccine hesitancy · Self-disclosure · Transparency · Psychotherapy

## Introduction

My patient started with a casual question in the middle of the session. “I’m thinking about the [COVID-19] vaccine, but

I’m not sure. What do you think?” In another time, I might have deferred an answer to this question to first understand the larger meaning behind her query at this moment in the session and in our relationship. But instead, I said, “I’m in favor of it. I received the first dose last week.”

## Vaccine hesitancy and COVID

Given the extreme negative consequences of COVID-19 within the United States and the rest of the world, effective vaccines (and very high rates of vaccine uptake) are a vital piece of the containment and mitigation strategy. Several vaccines have been approved under the United States [either with full Food and Drug Administration (FDA) authorization or emergency use authorization], and individuals throughout the world have begun to receive the vaccine (Reuters, 2021; U.S. Food & Drug Administration, 2021). The chorus among many in government and public health organizations is, “Please get the vaccine when it is your turn” (U.S. Department of Health & Human Services, 2021; World Health Organization, 2021). Despite this, there is notable hesitance around vaccination for some individuals, which is concerning given the significant health consequences of COVID.

Vaccine hesitancy in general has increased in the past decade (Lane et al., 2018; Salmon et al., 2015), to the point that the World Health Organization (WHO; 2019) declared vaccine hesitancy an epidemic even before the beginning of the COVID pandemic. With the advent of vaccines for COVID, concerns have arisen from some individuals, political figures, and certain parts of the media about vaccines’ potential efficacy and possible side effects (Hoffman, 2020; Troiano & Nardi, 2021). Data from August 2021 suggests while 82% of adults in the United States have received at

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least one dose of the vaccine, more than 7% have expressed an unwillingness to take the COVID vaccine, and another 7% reported some hesitancy (U.S. Census Bureau, 2021). Notably, vaccine hesitancy appears to have increased over the course of the COVID pandemic (Fridman et al., 2021). Vaccine hesitancy, delay, or declination has the potential for many negative effects, including increased likelihood of an individual contracting diseases such as measles, as well as the possibility of outbreaks among unvaccinated or under-vaccinated communities and those who are unable to be vaccinated or for whom vaccinations may be less effective (e.g., children, older adults, those who are immunocompromised; Dubé, Vivion, et al., 2015; Rashid et al., 2012; Salmon et al., 2015). In addition, vaccine hesitancy and lower vaccine rates increases healthcare costs, risk of hospitalization, loss of productivity for patients and families, and possibly increased mortality (Burns et al., 2020; Lo & Hotez, 2017; Lorton et al., 2018).

### Interventions to reduce vaccine hesitancy

Healthcare providers have suggested numerous strategies for increasing vaccination uptake in general, and a few studies have begun to apply these ideas to the COVID vaccine. Despite these efforts, no specific technique has been identified as most effective (Dubé, Gagnon, et al., 2015). Health education by medical providers is one common strategy that has been shown to increase vaccination uptake overall, though its specific effect on vaccine hesitancy is less clear (Charron et al., 2020; Kaufman et al., 2018). Conflicting research suggests that “myth busting” or vaccine education actually may be ineffective or backfire in some cases (Braun & O’Leary, 2020; Schwarzinger et al., 2021). Exposure to vaccine myths may inadvertently plant or strengthen those beliefs, even if the information is designed to counter inaccuracies. Another method is to take a “presumptive” approach: presenting a vaccination as though the patient certainly will accept it, rather than phrasing vaccination as a question which can be refused. While some studies have found this method to be effective (e.g., Braun & O’Leary, 2020), other research suggest that this approach can backfire (Helps et al., 2019). Another frequently discussed intervention is the threat or actual dismissal of a patient or family from a provider’s practice if they do not adhere to vaccination recommendations, although this strategy also is controversial and has limited research support (Schwartz, 2013; Williams et al., 2020). Notably, much research on vaccine hesitancy is done within pediatrics, as this population has a high number of recommended vaccines. While children are those who receive these vaccines, parents ultimately provide consent to these inoculations; thus, vaccine-hesitant parents are the ones needing to be convinced. A notable difference

with the COVID pandemic is that individuals of all ages need to be vaccinated, potentially limiting the relevancy of existing research studies that focused on hesitancy towards childhood vaccines.

Effective strategies to combat vaccine hesitancy and increase vaccination rates tend to center on communication strategies. Public health messaging is a commonly used tool to provide accurate vaccine information and combat misinformation and hesitancy (Braun & O’Leary, 2020). Notably, observational learning (seeing that friends, family, or public figures are vaccinated) significantly predicted willingness to be vaccinated against COVID (AlSaeed & Rabbani, 2021; Romaniuc et al., 2021). Further, while these findings include celebrity or politician endorsement, the most trusted sources of vaccination knowledge are healthcare providers (Paterson et al., 2016). Freeman et al. (2021) found that emphasizing the personal benefits of COVID vaccination, compared to the collective benefits, significantly reduced hesitancy. A small, but interesting study with vaccine-hesitant college students utilized interviews with individuals with a vaccine-preventable or autoimmune disease—combined with a science-based vaccine curriculum—and found a significant increase in pro-vaccine attitudes (Johnson et al., 2019). Another promising approach is the use of motivational interviewing techniques to build interest in vaccination while working around potential resistance (Boness et al., 2021; Possenti et al., 2019). In several studies, motivational interviewing has been shown to increase vaccine intention by 15% and actual vaccination rates by 7–20% (Dempsey et al., 2018; Gagneur, 2016–2021; Wermers et al., 2021). However, in other studies or even within the above studies, attitudes towards some vaccinations show no change or even a decline following intervention (Brackett et al., 2015).

Dempsey et al. (2018) found efficacy for a tiered communication strategy for parents hesitant about giving their child the human papillomavirus (HPV) vaccine—beginning with a presumptive approach, then utilizing communication, motivational interviewing, and educational techniques if the initial approach was ineffective. Dubé et al. (2021) note that the most important characteristic of a vaccine acceptance intervention is to match the tool with the patient’s specific vaccine concern (e.g., “unnaturalness” of vaccines, low threat or potential consequence of disease). It may be that a key element of this technique is the emotional and actual shared decision-making process occurring between patients and providers, rather than a paternalistic, fear- or punishment-based process (Majid & Ahmad, 2020). In a study on COVID vaccine hesitancy and acceptance in a sample of college students, participants generally expressed high levels of trust in healthcare providers and scientists, and those who trusted in the information they received from these sources showed higher levels of vaccine acceptance (Qiao et al., 2020). Concurrently, providers who feel knowledgeable and

confident about their understanding of vaccines are more likely to recommend vaccination to their patients (Badur et al., 2020). However, expression of vaccine hesitancy by a healthcare provider may also foster vaccine hesitancy in their patients (Dubé et al., 2021).

Provider recommendation (in addition to public health messaging and perceived risk) were important factors in the decision to receive the H1N1 vaccination (d’Alessandro et al., 2012; Maurer et al., 2010). Thus, it does not appear that the *mechanisms* of vaccine uptake interventions are different across diseases, but the *urgency* of vaccination may necessitate strong intervention during a pandemic.

### Provider self-disclosure as an intervention for vaccine hesitancy

Finally, self-disclosure by a provider tends to be a frequently cited clinical method to address vaccine hesitancy, albeit one which has not been rigorously studied (Braun & O’Leary, 2020). One study found that over 25% of pediatric provider visits dealing with vaccinations included at least one instance of self-disclosure (Lepere et al., 2019). Such self-disclosure may be broadly divided into two categories: clinical self-disclosure (description of the attitudes and behaviors of other patients or healthcare providers) or personal self-disclosure (either about their own vaccination status or that of their children). Lepere et al. (2019) found that in visits containing a self-disclosure, 34% involved personal self-disclosure (e.g., “I/my children are vaccinated”), 34% involved clinical self-disclosure (e.g., “Many of my other patients are vaccinated”), and 32% involved both types. Healthcare provider self-disclosure appears to work differently from other interventions due to the personal connection and trust one feels with their doctor, particularly in a long-term healthcare relationship (Ratzan et al., 2021).

Despite calls to leverage these techniques during the current pandemic (Johnson, 2021; Sidhu & Kumar, 2021), there have been very few studies on use of provider self-disclosure to combat COVID vaccine hesitancy. Mental health providers are well-positioned to utilize such interventions for increasing vaccine uptake, given the necessity of a strong alliance of psychologists/counselors with their patients (Del Re et al., 2021; Leach, 2005). Calls to action for combating vaccine hesitancy have focused more on other types of healthcare providers (Ieraci, 2018; MacDonald, 2020), but psychotherapists tend to see patients more frequently and for longer visits than other providers. These emotionally deep relationships may allow patients to disclose concerns more easily than to their other healthcare providers. Therapists also may be able to reach individuals who are not in regular contact with other healthcare providers generally or during the pandemic. In addition, given the significant mental

health effects of COVID and its accompanying isolation and grief (Kumar & Nayar, 2021; Vindegaard & Benros, 2020), mental health providers may be reaching patients in grave need of resources and encouragement to get vaccinated (Lim & Freudenreich, 2021). Vaccine hesitancy in recent history is intimately connected with mental health. It has origins in the untrue belief that vaccines are linked with autism, and an individual’s *fear* of negative health or mental health consequences of vaccines may be better approached by a therapist than by a doctor. Mental health providers also can provide individually tailored vaccine acceptance interventions with flexibility and knowledge of the individual patient’s character structure—as opposed to universal or one-size-fits-all interventions.

Much of the research and the tools outlined in this paper are geared towards psychotherapists, given the unique role they hold with their patients. Further, while there is limited research on the use of self-disclosure by healthcare providers to reduce vaccine hesitancy, there is even less on these processes in mental healthcare. However, the concerns and recommendations herein discussed are relevant to the many other types of healthcare providers who may have such discussions with their patients (Chung et al., 2017; Gilkey & McRee, 2016).

### Benefits and risks of self-disclosure by mental health providers

Despite the potential role of therapists in an overall vaccination strategy, these providers hold a different role with their patients than other medical providers. Beginning in the tradition of Freud and the “*tabula rasa*,” psychologists and counselors have been discouraged from engaging in self-disclosure, particularly within psychoanalytic and psychodynamic frameworks (Freud, 1958; Peterson, 2002). While this stance has evolved over time (e.g., Henretty & Levitt, 2010; Köhler et al., 2017), therapists may still be hesitant to use self-disclosure, especially around matters of personal health. First, self-disclosure may upset the dynamic of provider-patient, the patient can start to see the therapist as needing care, or the patient may become increasingly curious about the therapist in treatment-interfering ways. Second, therapists themselves may experience vaccine hesitancy. While exact numbers are difficult to find, we can infer that because some medical providers are vaccine hesitant (Kose et al., 2021), a subset of mental health providers are as well. Third, some therapists may believe that acting as a health advocate is outside of their scope of practice or should be completed by medical providers instead. Fourth, therapists may feel that it is not their responsibility to impart their values on their patients—potentially verging into the fuzzy realms of paternalistic advice giving (Johnson, 2021).

Notably, those trained in the medical professions (doctors, advanced practice providers, nurses) generally have more relaxed guidelines and ethics around self-disclosure. However, psychologists and those in related mental health fields do use self-disclosure, albeit cautiously and thoughtfully (Carew, 2009).

Generally, researchers have found that judicious self-disclosure can be an effective tool to further build the therapeutic alliance in already strong relationships; to increase feelings of closeness and similarity between provider and client; to facilitate client self-disclosure; and to deepen psychological examination (Henretty & Levitt, 2010). Theorists believe that disclosure can be extremely meaningful because it allows the patient to see the therapist as a real person—one who is more of a teammate than a coach (Farber, 2003). Self-disclosure can provide the client with the knowledge that their therapist has been through a similar experience, such as also being LGBTQ+ (Gibson, 2012; Henretty & Levitt, 2010) or having also dealt with cancer (Lawson et al., 2021). From the humanistic tradition, it can function as a means of radical genuineness and unconditional positive regard (Gibson, 2012).

Feminist and multicultural orientations make a strong case for self-disclosure as a therapeutic tool. In addition, these traditions, along with fields such as counseling and social work, have a history of incorporating ideas of social justice within practice and outside of the therapy room (Comas-Diaz, 2012; Winter, 2019). Feminist and multicultural approaches also acknowledge the innate power differential between patient and therapist across orientations (Barnett, 2011; Mahalik et al., 2000). The hierarchy inherent in the therapist-patient relationship is examined and flattened, with self-disclosure and understanding of the therapist's social location being tools for this process.

The Ethics Code of the American Psychological Association (2002) does not explicitly address the ethics of self-disclosure by therapists. However, guidelines such as APA 3.08 (Exploitative Relationships) highlight the importance of acknowledging the hierarchy implicit in a patient-therapist relationship and the necessity of avoiding abuse of that power. Researchers and theorists have provided more clear guidance around when and how self-disclosure may be used ethically (Barnett, 2011; Peterson, 2002).

Ethically, self-disclosure should be done in the context of a strong enough therapeutic relationship, with patients who have solid interpersonal boundaries, and for a specific, targeted clinical reason (Henretty & Levitt, 2010; Miller & McNaught, 2018). Much of the research on self-disclosure in psychotherapy suggests two broad categories: intra-therapy disclosure and extra-therapy disclosure (Peterson, 2002). Intra-therapy disclosure includes that which is directly relevant to the therapy experience, ranging from the therapist's education and experience to commentary on the therapeutic

process or transference/counter-transference reactions (Henretty & Levitt, 2010). This type of disclosure generally is believed to be a helpful and even necessary part of the treatment process. On the other hand, extra-therapy disclosures include those about the provider's life outside of the therapy room, which tends to be less uniformly accepted and more controversial (Peterson, 2002).

### Therapist self-disclosure of health information

Research on the efficacy of therapist self-disclosure of health matters is sparse. More widely available are qualitative and theoretical examinations of this topic, which find that self-disclosure of illness or other significant negative events in the therapist's life can have variable effects on patients (Gibson, 2012; Peterson, 2002).

There is a case to be made that the COVID vaccination status of the therapist can be perceived as either an intra- or extra-therapy disclosure. Therapists and patients may believe that vaccination status is a part of informed consent to treatment and that a patient's knowledge of their therapist's vaccination status allows them to feel more comfortable attending in-person sessions. Because of the pervasive messaging around COVID and vaccinations within governmental and medical institutions, it is no surprise that these questions arise in the therapy office as well (Johnson, 2021). On the other hand, clients or therapists may believe that vaccination status is a personal and extra-therapy factor—one which may be irrelevant to the patient's therapeutic process. The question often asked about therapist self-disclosure is “Why? And why now?” (Farber, 2003). Certainly, the response of “To help protect my client from serious illness and stop the spread of a global pandemic,” would be a strong answer to that question.

Self-disclosure of vaccination status can be viewed as an act of genuineness on the part of the therapist, as well as an overt or covert personal recommendation of the vaccine. Self-disclosure can foster an egalitarian patient-therapist relationship, with both participants being open about this aspect of their health—and by extension their values (Conlin, 2017). In these models, effective use of self-disclosure should emphasize the utmost importance of the therapeutic relationship and the client's voice in that relationship, as well as have a clear clinical rationale for the disclosure (Mahalik et al., 2000).

In addition, particularly for patients who are already hesitant about or who have been treated indifferently or even harmed by the medical establishment (e.g., people of color, those from low socioeconomic status), therapists can provide both education and demonstration of how they navigated the decision-making process and the practical matter of getting vaccinated. Communities of color and poorer areas

have experienced a disproportionate negative impact due to COVID (Boserup et al., 2020; Quan et al., 2021). Concurrently, rates of mistrust of the COVID vaccine are higher in these communities than in white communities (Opel et al., 2021). However, this also highlights the great need for encouragement of vaccine uptake among marginalized groups (Bunch, 2021), and therapists can utilize their training in culturally competent care to address these concerns. Addressing vaccine hesitancy well involves making the patient an equal participant in these conversations; allowing them space to discuss any hesitation or questions they have; using empathy and active listening; and eventually providing a clear recommendation for vaccination (Opel et al., 2021).

Conversely, by deflecting or refusing to answer questions about vaccination status, a psychotherapist could be missing an important opportunity. Studies of thoughtful self-disclosure in therapy have found that the act tends to deepen therapeutic rapport and reduce patient distress (Conlin, 2017). Patients who bring up the topic of vaccines in a questioning way or by asking for more information may be expressing both hesitancy but also willingness to discuss these topics (Majid & Ahmad, 2020), and such an opportunity could easily be squandered. Vaccine-hesitant parents report that positive healthcare encounters around vaccination typically involve thorough and empathic listening—a skill particularly developed in psychotherapists (Helps et al., 2019). Rapport and trust, the process of shared decision-making, and rolling with resistance—all of which are common within a therapy relationship—have also been identified as important aspects of combating COVID vaccine hesitancy (Durand et al., 2021; Gabarda & Butterworth, 2021).

### Recommendations for therapist self-disclosure of vaccine status

There has been very little research on how therapist self-disclosure affects vaccine hesitancy and vaccine uptake. However, many hospitals and other medical facilities are strongly encouraging their staff not only to get the vaccine but to be advocates about it to their patients (Diamond, 2021; U.S. Department of Veterans Affairs, 2021). Given the potential role of mental health providers in advocating for public health—and building on the guidelines suggested in Henretty and Levitt (2010) and Hill and Knox (2001)—following are several considerations for using self-disclosure of vaccination status in therapy relationships to facilitate patients' vaccine uptake.

*To be a source of good information for your patients.* Psychologists and therapists generally have experience in understanding and analyzing scientific research, more so than many patients. Therapists can be a useful resource for patients to gather correct health information, as well as to

understand how statistics are relevant to illness and vaccinations (e.g., absolute risk, base rates). Overall, people have difficulty interpreting risk, and therapists can be helpful in decoding this information so that patients have the greatest ability to make an informed decision. For a therapist, having a good understanding of the basic safety and efficacy of the vaccine (as well as the risk of short- and long-term effects of COVID) can increase their confidence in discussing vaccination, as well as in having ready answers for their patients' questions. Therapist self-disclosure also may serve to normalize the complex emotions and decision-making around health (Hill & Knox, 2001). As physicians do (Lepere et al., 2019), therapists may use clinical self-disclosure to highlight what other patients in a similar position are doing in terms of vaccine choice. In addition, a therapist can echo the refrain often prescribed to vaccine-hesitant patients: to talk to their primary care provider to get answers to their concerns.

*To express your values as a therapist.* Ideally, a mental health provider and their patient are on the same page when it comes to goals of care and steps to achieve them. But therapists and their patients do end up on opposite sides of value discussions on a regular basis, and this needs to be worked through. Therapeutic orientations such as Acceptance and Commitment Therapy have an explicit focus on how patient values may be elicited and expressed as a means of facilitating adaptive behavior change (Zhang et al., 2018). Notably, ACT has been found to be an efficacious intervention for a variety of health changes, including exercise, nutrition change, smoking cessation, reduction in alcohol use, and even potentially vaccine uptake (Barreto et al., 2019; Cheung & Mak, 2016). When patient actions are congruent with their most important values, they are more likely to follow through, even with difficult tasks.

While vaccine hesitancy is not as immediate and harmful as suicidality, a therapist may express to a suicidal patient that they are always firmly on the side of the patient living and will fight for that, even if there are times where the patient feels ambivalent. Similarly, a therapist can be firmly on the side of advocating for their patient's health and express this. While this may appear to conflict with a patient's specific health values at times, the underlying desire of clients and therapists is likely congruent—to keep the patient and their families safe—even if their suggested methods to do so are divergent. A therapist also might express that they hold these values for themselves—that health (and by extension vaccination) is very important to them, both for the provider as well as for their family members.

*To model and reinforce effective health behavior.* Self-disclosure of vaccination status is a clear example of therapists living up to the principles of health that they want for their patients. While modelling by celebrities and other high-profile figures is sufficient in some cases of vaccine hesitancy, other individuals will be more swayed by

a personal endorsement from someone they trust (Brewer et al., 2017). One aspect of self-disclosure which has been found to be helpful is disclosure which demonstrates a similarity between client and therapist (Henretty & Levitt, 2010). Simultaneously, the social cognitive theory of health behavior change also emphasizes that modelling of health behaviors is most likely to be effective when coming from a source that the patient feels is “like them” (McAlister et al., 2008). Further, patients who have a strong rapport with their therapist can experience a conscious or subconscious desire to emulate them, and a healthy manifestation of that wish is wanting to “be like my therapist” in vaccination status.

*To acknowledge patients’ hesitancy.* One of the principles of motivational interviewing is the concept of “rolling with resistance.” In this case, vaccine hesitancy is not inherently a matter of resistance, but therapists must avoid falling into the trap of acknowledging only one side of this issue. To tell a patient, “No, don’t worry!” is to ignore realistic hesitation about a newly developed vaccine in a time of great health anxiety. Further, patients may avoid discussion or downplay fears with other medical providers if they feel that they will be judged for a lack of knowledge or for their concerns. While therapists are not immune from this same process, they may be better positioned to use their clinical skills and therapeutic alliance to tackle such topics with a client. Research from the transtheoretical and motivational interviewing models of health behavior change suggest that “consciousness raising” and the ability to explore ambivalence without solidifying resistance or avoidance are useful therapeutic strategies (Krebs et al., 2018; McNeil et al., 2017).

On the other hand, vaccine hesitancy may not be an issue that can be fully resolved by deep exploration of each worry. Therapists must walk a balance of acknowledging anxiety and other emotions that account for vaccine hesitancy, while also providing good information and a reasonable perspective on the other side of the issue. In addition, it likely will be counterproductive for a therapist to discussing their own vaccine hesitancy if it is still unresolved because that is likely to increase patient hesitancy, rather than placate it.

*To avoid falling into debate.* A therapist may choose to describe their decision-making process when it came to getting themselves or their family vaccinated. Understanding the very specific and unique factors that went into a therapist’s decision to be vaccinated is likely unnecessary (and may verge into extra-therapy disclosure). Instead, the focus should be on the broad factors, values, and rationale that led to the decision, especially those which might also be relevant to their patient. Research on vaccine hesitancy suggests that narrative may be a more persuasive tool than statistics for “moving the needle” on these beliefs (Betsch et al., 2011).

Discussion of their personal experience of vaccination may provide less fodder for a philosophical or factual

argument for a patient who is dead set against vaccination—a debate which likely is at best ineffective and at worst going to entrench resistance (Helps et al., 2019). But that is not the case for most patients, who are better described as hesitant or questioning. A common response to clients’ personal questions about the therapist is to explore the underlying reasons why that question arose for the patient in that moment. For patients asking about a therapist’s vaccination status, it may be reasonable to ask why a patient is asking the question. However, to defer the answer to this question is to introduce uncertainty into the relationship about a fairly straightforward topic—and one which the patient reasonably may feel they have a right to know. Further, a patient could interpret this nondisclosure as tacitly accepting or potentially fostering vaccine hesitant beliefs.

*To elicit deeper or hidden emotions.* A therapist’s foremost goal with a vaccine hesitant patient should be to understand their perspective and the accompanying emotions. Most therapeutic traditions acknowledge that there is no universal truth, and beliefs are not inherently right or wrong. Patients may have a reasonable fear of new and rapidly changing science, and to ignore or downplay those feelings is to potentially ignore the very real strings that bind the patient. This is a particular strength of vaccine interventions by mental health providers, who may have more experience and freedom than medical providers to spend time working through these emotions. While beliefs can be understood using logic, emotions may operate differently. A vaccine hesitant patient is likely to have a reaction to their therapist self-disclosing their vaccination status, but if this disclosure facilitates exploration of greater emotional depth, it has planted a seed. A therapist can actively acknowledge and explore a patient’s emotions around this difficult topic without falling into an ideological battle that increases resistance. Ideally, a therapist’s vaccine acceptance intervention should seek to examine underlying feelings and thoughts, rather than political beliefs, medical misinformation, or arguments. By acknowledging emotions and not attempting to fight or belittle them, the emotional intensity can lower, and the conversation can move forward.

*Getting the timing right.* The easiest way to get the timing right is when a patient directly asks the therapist whether they have received the vaccine. By asking about vaccines in general or the therapist’s vaccination status, the patient is broaching the topic directly. Those who are more hesitant may be more likely to bring up questions about the topic (Majid & Ahmad, 2020), but this also provides a wonderful opportunity to allow vaccination to be a topic within the treatment. For patients who do not bring up vaccination, it is important that therapists know the vaccination status of their patients (for their own knowledge as well as their clinical care). Even asking about a patient’s vaccination status is a step towards vaccination being a topic of discussion.

Self-disclosure of vaccination status is a way to broach this topic if it hasn't come up organically, which again, gets it "in the room." Finally, an important factor in effective self-disclosure is that it is done thoughtfully and with a clear rationale based on the patient's needs. By anticipating and planning for these discussions, a therapist will be better prepared to effectively broach this topic. A strong existing therapy relationship should increase confidence that both challenges and self-disclosure will be well received by the patient—or at least that a rupture can be worked through and recovered from. Conversely, a weak or inconsistent alliance would be a signal to use self-disclosure more judiciously or to go more slowly.

*Observe carefully the effects of the self-disclosure.* Research consistently highlights how different patients will react to an instance of self-disclosure in disparate ways: an instance which is highly effective with one patient may be ineffective or even off-putting to another (Peterson, 2002). Of course, the best metric for whether self-disclosure has been an effective intervention is if the patient gets vaccinated. But other indications of efficacy might include a deepening of emotional content, increased willingness to discuss vaccination or other health matters, and the maintenance or strengthening of the therapeutic alliance. The major concern about self-disclosure of this kind is that it would create a rupture. If self-disclosure of vaccine status goes poorly, this can be "grist for the mill." Ruptures exist in nearly all therapeutic relationships, and the working through of these concerns can be at the heart of the necessary changes a patient should make in treatment (Safran et al., 2011). If a therapist is avoiding difficult conversations because they may be contentious, they are losing out on significant opportunities for patient growth. Therapist discussions about vaccination do not have to be adversarial; they can (and should) be curious, caring, and thoughtful, leaving the participants feeling better understood and closer to their therapist.

## Discussion

At this point in the COVID pandemic, those who were eager to be vaccinated have been able to do so (and may have received a booster shot as well). Now, those who are left typically are those who have internal barriers to vaccination (e.g., vaccine hesitancy, belief in low risk of contracting the disease, desire for more information about the vaccine: Galanis et al., 2021; Solís Arce et al., 2021). Workplace vaccination requirements are just beginning to be implemented. With the widespread availability of COVID vaccines—but the ever-present threat of disease mutations and breakthrough infections—this is a key time for therapists and

other healthcare providers to reach hesitant patients and help to increase vaccine uptake.

In terms of research, psychologists and other mental health professionals should receive more examination for their roles in promoting prevention and health behavior change. Specifically, therapists' role in discussing vaccination with their patients and their ability to be advocates for vaccination through self-disclosure or other tools should be systematically examined, in the same way that these techniques have been examined in other healthcare providers (e.g., pediatricians). In case of future local or global disease outbreaks, research on hesitancy and uptake for adult vaccinations is necessary, in addition to continued research on vaccination hesitancy for childhood vaccines.

The efficacy of self-disclosure generally or self-disclosure of health matters specifically has been examined to a greater extent using qualitative measures. Quantitative and psychotherapy process research would add greatly to our knowledge about this topic. A first step would be gaining a clearer idea of the prevalence of self-disclosure on health topics and vaccination status among therapists and patients. An additional focus includes examination of how therapist self-disclosure of vaccination or health status varies across theoretical orientations. Existing interventions which have been studied in other professions to combat vaccine hesitancy also may be adapted for psychotherapists. Further, while these issues certainly are relevant to the COVID vaccine, testing psychological interventions to increase vaccine uptake for childhood or adulthood vaccines is appropriate as well. Finally, medical and mental health professions need not be siloed in the research and application in this area, as they face similar challenges with similar tools. Integrative research on self-disclosure across health professions for vaccine uptake would be useful and parsimonious.

At the end of that session, the patient brought up vaccinations again. "I think I'm going to get it. I really need to. But I'll be looking forward to hearing about how your second dose goes." I replied, "Absolutely."

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## Declarations

**Conflicts of interest** The author has no relevant financial or non-financial interests to disclose.

**Ethics approval** IRB approval is not necessary, as this is a review article without use of human subjects' data.

Consent to participate/consent for publication Consent for participation and publication are not required as no human subjects' data was used in this manuscript.

**Human and animal rights** All procedures followed were in accordance with ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000.

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## References

- AlSaeed, A. A., & Rabbani, U. (2021). Explaining COVID-19 vaccine rejection using social cognitive theory in Qassim, Saudi Arabia. *Vaccines*, 9, 1304. <https://doi.org/10.3390/vaccines9111304>
- American Psychological Association. (2002). Ethical principles of psychologists and code of conduct. *American Psychologist*, 57, 1060–1073.
- Badur, S., Ota, M., Öztürk, S., Adegbola, R., & Dutta, A. (2020). Vaccine confidence: The keys to restoring trust. *Human Vaccines and Immunotherapeutics*, 16(5), 1007–1017.
- Barnett, J. E. (2011). Psychotherapist self-disclosure: Ethical and clinical considerations. *Psychotherapy*, 48(4), 315–321.
- Barreto, M., Tran, T. A., & Gaynor, S. T. (2019). A single-session of Acceptance and Commitment Therapy for health-related behavioral change: An open trial with a nonconcurrent matched comparison group. *Journal of Contextual Behavioral Science*, 13, 17–26. <https://doi.org/10.1016/j.jcbs.2019.06.003>
- Betsch, C., Ulshöfer, C., Renkewitz, F., & Betsch, T. (2011). The influence of narrative v. statistical information on perceiving vaccination risks. *Medical Decision Making*, 31, 742–753.
- Boness, C. L., Nelson, M., & Douaihy, A. (2021). Motivational interviewing strategies for addressing COVID-19 vaccine hesitancy [pre-print]. <https://doi.org/10.31219/osf.io/wqf6h>
- Boserup, B., McKenney, M., & Elkbulli, A. (2020). Disproportionate impact of COVID-19 pandemic on racial and ethnic minorities. *American Surgeon*, 86(12), 1615–1622.
- Brackett, A., Butler, M., & Chapman, L. (2015). Using motivational interviewing in the community pharmacy to increase adult immunization readiness: A pilot evaluation. *Journal of the American Pharmacists Association*, 55(2), 182–186.
- Braun, C., & O'Leary, S. T. (2020). Recent advances in addressing vaccine hesitancy. *Current Opinions in Pediatrics*, 32(4), 601–609. <https://doi.org/10.1097/MOP.0000000000000929>
- Brewer, N. T., Chapman, G. B., Rothman, A. J., Leask, J., & Kempe, A. (2017). Increasing vaccination: Putting psychological science into action. *Psychological Science*, 18(3), 149–207.
- Bunch, L. (2021). A tale of two crises: Addressing COVID-19 vaccine hesitancy as promoting racial justice. *HEC Forum*, 33, 143–154.
- Burns, H. E., Collins, A. M., Fallon, U. B., Marsden, P. V., & Ni Shuilleabhain, C. M. (2020). Rotavirus vaccination impact, Ireland, implications for vaccine confidence and screening. *European Journal of Public Health*, 30(2), 281–285.
- Carew, L. (2009). Does theoretical background influence therapists' attitudes to therapist self-disclosure? A qualitative study. *Counseling and Psychotherapy Research*, 9(4), 266–272.
- Charron, J., Gautier, A., & Jestin, C. (2020). Influence of information sources on vaccine hesitancy and practices. *Medecine Et Maladies Infectieuses*, 50(8), 727–733.
- Cheung, K. W., & Mak, Y. W. (2016). Association between psychological flexibility and health beliefs in the uptake of influenza vaccination among people with chronic respiratory diseases in Hong Kong. *International Journal of Environmental Research and Public Health*, 13, 155. <https://doi.org/10.3390/ijerph13020155>
- Chung, Y., Schamel, J., Fisher, A., & Frew, P. M. (2017). Influences on immunization decision-making among US parents of young children. *Maternal and Child Health Journal*, 21, 2178–2187.
- Comas-Diaz, L. (2012). Psychotherapy as a healing practice, scientific endeavor, and social justice action. *Psychotherapy*, 49(4), 473–474. <https://doi.org/10.1037/a0027820>
- Conlin, S. E. (2017). Feminist therapy: A brief integrative review of theory, empirical support, and call for new directions. *Women's Studies International Forum*, 62, 78–82.
- d'Alessandro, E., Hubert, D., Launey, O., Bassinet, L., Lortholary, O., Jaffre, Y., & Sermet-Gaudelus, I. (2012). Determinants of refusal of A/H1N1 pandemic vaccination in a high risk population: A qualitative approach. *PLoS ONE*, 7(4), e34054. <https://doi.org/10.1371/journal.pone.0034054>
- Del Re, A. C., Flückiger, C., Horvath, A. O., & Wampold, B. E. (2021). Examining therapist effects in the alliance–outcome relationship: A multilevel meta-analysis. *Journal of Consulting and Clinical Psychology*, 89(5), 371–378. <https://doi.org/10.1037/ccp0000637>
- Dempsey, A. F., Pyrznowski, J., Lockhart, S., Barnard, J., Campagna, E. J., Garrett, K., Fisher, A., Dickinson, L. M., & O'Leary, S. T. (2018). Effect of a health care professional communication training intervention on adolescent human papillomavirus vaccination: A cluster randomized clinical trial. *JAMA Pediatrics*, 172(5), e180016. <https://doi.org/10.1001/jamapediatrics.2018.0016>
- Diamond, D. (2021). 'A tipping point': Government officials, health groups move to require coronavirus vaccines for workers. *Washington Post*. <https://www.washingtonpost.com/health/2021/07/26/mandatory-vaccinations-urged-health-workers/>
- Dubé, E., Gagnon, D., & MacDonald, N. E. (2015). Strategies intended to address vaccine hesitancy: Review of published reviews. *Vaccine*, 33(34), 4191–4203.
- Dubé, E., Vivion, M., & MacDonald, N. E. (2015). Vaccine hesitancy, vaccine refusal and the anti-vaccine movement: Influence, impact and implications. *Expert Review of Vaccines*, 14(1), 99–117.
- Dubé, È., Ward, J. K., Verger, P., & MacDonald, N. E. (2021). Vaccine hesitancy, acceptance, and anti-vaccination: Trends and future prospects for public health. *Annual Review of Public Health*, 42, 175–191.
- Durand, M.-A., Scalia, P., & Elwyn, G. (2021). Can shared decision making address COVID-19 vaccine hesitancy? *BMJ Evidence-Based Medicine*. <https://doi.org/10.1136/bmjebm-2021-111695>
- Farber, B. A. (2003). Patient self-disclosure: A review of the research. *Journal of Clinical Psychology*, 59(5), 589–600.
- Freeman, D., Loe, B. S., Yu, L.-M., Freeman, J., Chadwick, A., Vaccari, C., Shanyinde, M., Harris, V., Waite, F., Rosebrock, L., Petit, A., Vanderslott, S., Lewandowsky, S., Larkin, M., Innocenti, S., Pollard, A. J., McShane, H., & Lambe, S. (2021). Effects of different types of written vaccination information on COVID-19 vaccine hesitancy in the UK (OCEANS-III): A single-blind, parallel-group, randomised controlled trial. *Lancet Public Health*, 6(6), e416–e427. [https://doi.org/10.1016/S2468-2667\(21\)00096-7](https://doi.org/10.1016/S2468-2667(21)00096-7)



- Freud, S. (1958). Recommendations to physicians practicing psychoanalysis. In J. Strachey (Ed.), *The standard edition of the complete psychological works of Sigmund Freud* (Vol. 12, pp. 109–120). Hogarth Press. (Original work published 1912).
- Fridman, A., Gershon, R., & Gneezy, A. (2021). COVID-19 and vaccine hesitancy: A longitudinal study. *PLoS ONE*, *16*(4), e0250123. <https://doi.org/10.1371/journal.pone.0250123>
- Gabarda, A., & Butterworth, S. W. (2021). Using best practices to address COVID-19 vaccine hesitancy: The case for the motivational interviewing approach. *Health Promotion Practice*, *22*, 611–615. <https://doi.org/10.1177/15248399211016463>
- Gagneur, A. (2016–2021). Evaluation of an intervention promoting vaccination in maternity in Quebec (PROMOVAQ). <https://clinicaltrials.gov/ct2/show/study/NCT02666872>, [Clinical trial identifier NCT02666872]
- Galanis, P., Vraka, I., Siskou, O., Konstantakopoulou, O., Katsiroumpa, A., & Kaitelidou, D. (2021). Predictors of COVID-19 vaccination uptake and reasons for decline of vaccination: A systematic review [pre-print]. *medRxiv*. <https://doi.org/10.1101/2021.07.28.21261261>
- Gibson, M. F. (2012). Opening up: Therapist self-disclosure in theory, research, and practice. *Clinical Social Work Journal*, *40*(3), 287–296.
- Gilkey, M. B., & McRee, A.-L. (2016). Provider communication about HPV vaccination: A systematic review. *Human Vaccines and Immunotherapeutics*, *12*(6), 1454–1468.
- Helps, C., Leask, J., Barclay, L., & Carter, S. (2019). Understanding non-vaccinating parents' views to inform and improve clinical encounters: A qualitative study in an Australian community. *British Medical Journal Open*, *9*(5), e026299.
- Henretty, J. R., & Levitt, H. M. (2010). The role of therapist self-disclosure in psychotherapy: A qualitative review. *Clinical Psychology Review*, *30*(1), 63–77.
- Hill, C. E., & Knox, S. (2001). Self-disclosure. *Psychotherapy: Theory, Research, Practice, Training*, *38*(4), 413.
- Hoffman, J. (2020). Mistrust of a coronavirus vaccine could imperil widespread immunity. *New York Times*. <https://www.nytimes.com/2020/07/18/health/coronavirus-anti-vaccine.html>
- Ieraci, S. (2018). Redefining the physician's role in the era of online health information. *Medical Journal of Australia*, *209*(8), 340–341.
- Johnson, M. C. (2021). Self-disclosure as a public health intervention. *Academic Psychiatry*. <https://doi.org/10.1007/s40596-021-01476-1>
- Johnson, D. K., Mello, E. J., Walker, T. D., Hood, S. J., Jensen, J. L., & Poole, B. D. (2019). Combating vaccine hesitancy with vaccine-preventable disease familiarization: An interview and curriculum intervention for college students. *Vaccines*, *7*(2), 39.
- Kaufman, J., Ryan, R., Walsh, L., Horey, D., Leask, J., Robinson, P., & Hill, S. (2018). Face-to-face interventions for informing or educating parents about early childhood vaccination. *Cochrane Database of Systematic Reviews*, *5*(5), CD010038. <https://doi.org/10.1002/14651858.CD010038.pub3>
- Köhler, S., Guhn, A., Betzler, F., Stiglmayr, C., Brakemeier, E.-L., & Sterzer, P. (2017). Therapeutic self-disclosure within DBT, schema therapy, and CBASP: Opportunities and challenges. *Frontiers in Psychology*, *8*, 2073. <https://doi.org/10.3389/fpsyg.2017.02073>
- Kose, S., Mandiracioglu, A., Sahin, S., Kaynar, T., Karbus, O., & Ozbek, Y. (2021). Vaccine hesitancy of the COVID-19 by health care personnel. *International Journal of Clinical Practice*, *75*(5), e13917.
- Krebs, P., Norcross, J. C., Nicholson, J. M., & Prochaska, J. O. (2018). Stages of change and psychotherapy outcomes: A review and meta-analysis. *Journal of Clinical Psychology*, *74*(11), 1964–1979. <https://doi.org/10.1002/jclp.22683>
- Kumar, A., & Nayar, K. R. (2020). COVID 19 and its mental health consequences. *Journal of Mental Health*. <https://doi.org/10.1080/09638237.2020.1757052>
- Lane, S., MacDonald, N. E., Marti, M., & Dumolard, L. (2018). Vaccine hesitancy around the globe: Analysis of three years of who/unicef joint reporting form data-2015–2017. *Vaccine*, *36*(26), 3861–3867. <https://doi.org/10.1016/j.vaccine.2018.03.063>
- Lawson, K., Werner-Lin, A., Fitzgerald, F., & Zabora, J. R. (2021). Defining self-disclosure of personal cancer coping experiences in oncology social workers' helping relationships: When cancer "hits home". *Journal of Psychosocial Oncology*. <https://doi.org/10.1080/07347332.2021.1914270>
- Leach, M. J. (2005). Rapport: A key to treatment success. *Complementary Therapies in Clinical Practice*, *11*(4), 262–265. <https://doi.org/10.1016/j.ctcp.2005.05.005>
- Lepere, K., Etsekson, N., & Opel, D. J. (2019). Provider self-disclosure during the childhood vaccine discussion. *Clinical Pediatrics*, *58*(6), 691–695. <https://doi.org/10.1177/0009922818817828>
- Lim, C., & Freudenreich, O. (2021). Becoming vaccine ambassadors: A new role for psychiatrists. *Current Psychiatry*, *20*(8), 11.
- Lo, N. C., & Hotez, P. J. (2017). Public health and economic consequences of vaccine hesitancy for measles in the United States. *JAMA Pediatrics*, *171*(9), 887–892. <https://doi.org/10.1001/jamapediatrics.2017.1695>
- Lorton, F., Chalumeau, M., Assathiany, R., Martinot, A., Bucchia, M., Roué, J. M., Bourgoin, P., Chantreuil, J., Boussicault, G., & Gaillet, T. (2018). Vaccine-preventable severe morbidity and mortality caused by meningococcus and pneumococcus: A population-based study in France. *Paediatric and Perinatal Epidemiology*, *32*(5), 442–447.
- MacDonald, N. E. (2020). Vaccine misinformation found online and what to do about it. *Cancer Care Delivery Research*, *46*(11/12), 437–440. <https://doi.org/10.14745/ccdr.v46i1112a11>
- Mahalik, J. R., Van Ormer, E. A., & Simi, N. L. (2000). Ethical issues in using self-disclosure in feminist therapy. In M. M. Brabeck (Ed.), *Practicing feminist ethics in psychology* (pp. 189–201). American Psychological Association.
- Majid, U., & Ahmad, M. (2020). The factors that promote vaccine hesitancy, rejection, or delay in parents. *Qualitative Health Research*, *30*(11), 1762–1776.
- Maurer, J., Uscher-Pines, L., & Harris, K. (2010). Awareness of government seasonal and 2009 H1N1 influenza vaccination recommendations among targeted US adults: The role of provider interactions. *American Journal of Infection Control*, *38*(6), 489–490.
- McAlister, A. L., Perry, C. L., & Parcel, G. S. (2008). How individuals, environments, and health behaviors interact: Social cognitive theory. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (4th ed.). Wiley.
- McNeil, D. W., Addicks, S. H., & Randall, C. L. (2017). Motivational interviewing and motivational interactions for health behavior change and maintenance. *Oxford Handbooks Online*. <https://doi.org/10.1093/oxfordhb/9780199935291.013.21>
- Miller, E., & McNaught, A. (2018). Exploring decision making around therapist self-disclosure in cognitive behavioural therapy. *Australian Psychologist*, *53*(1), 33–39.
- Opel, D. J., Lo, B., & Peek, M. E. (2021). Addressing mistrust about COVID-19 vaccines among patients of color. *Annals of Internal Medicine*, *174*(5), 698–700.
- Peterson, Z. D. (2002). More than a mirror: The ethics of therapist self-disclosure. *Psychotherapy: Theory, Research, Practice, Training*, *39*(1), 21.
- Paterson, P., Meurice, F., Stanberry, L. R., Glismann, S., Rosenthal, S. L., & Larson, H. J. (2016). Vaccine hesitancy and healthcare

- providers. *Vaccine*, 34(52), 6700–6706. <https://doi.org/10.1016/j.vaccine.2016.10.042>
- Possenti, V., Luzi, A. M., Colucci, A., & De Mei, B. (2019). Communication and basic health counselling skills to tackle vaccine hesitancy. *Annali Dell'istituto Superiore Di Sanita*, 55(2), 195–199.
- Qiao, S., Friedman, D. B., Tam, C. C., Zeng, C., & Li, X. (2020). Vaccine acceptance among college students in South Carolina: Do information sources and trust in information make a difference? *MedRxiv*.
- Quan, D., Wong, L. L., Shallal, A., Madan, R., Hamdan, A., Heaveen, A., Daneshvar, A., Mahajan, M., Nasereldin, M., Van Harn, M., Opara, I. N., & Zervos, M. (2021). Impact of race and socioeconomic status on outcomes in patients hospitalized with COVID-19. *Journal of General Internal Medicine*, 36, 1302–1309.
- Rashid, H., Khandaker, G., & Booy, R. (2012). Vaccination and herd immunity: What more do we know? *Current Opinion in Infectious Diseases*, 25(3), 243–249.
- Ratzan, S., Schneider, E. C., Hatch, H., & Cacchione, J. (2021). Missing the point—How primary care can overcome COVID-19 vaccine “hesitancy.” *New England Journal of Medicine*, 384(25), e100. <https://doi.org/10.1056/NEJMp2106137>
- Reuters. (2021). *Covid-19 vaccination tracker*. World Coronavirus Tracker and Maps. Retrieved August 27, 2021 from <https://graphics.reuters.com/world-coronavirus-tracker-and-maps/vaccination-rollout-and-access/>
- Romaniuc, R., Guido, A., Mai, N., Spiegelman, E., & Sutan, A. (2021). Increasing vaccine acceptance and uptake: A review of the evidence [pre-print]. *SSRN*. <https://doi.org/10.2139/ssrn.3839654>
- Safran, J. D., Muran, J. C., & Eubanks-Carter, C. (2011). Repairing alliance ruptures. *Psychotherapy*, 48(1), 80.
- Salmon, D. A., Dudley, M. Z., Glanz, J. M., & Omer, S. B. (2015). Vaccine hesitancy: Causes, consequences, and a call to action. *Vaccine*, 33, D66–D71. <https://doi.org/10.1016/j.vaccine.2015.09.035>
- Schwartz, J. L. (2013). “Model” patients and the consequences of provider responses to vaccine hesitancy. *Human Vaccines and Immunotherapeutics*, 9(12), 2663–2665.
- Schwarzinger, M., Watson, V., Arwidson, P., Alla, F., & Luchini, S. (2021). COVID-19 vaccine hesitancy in a representative working-age population in France: A survey experiment based on vaccine characteristics. *Lancet Public Health*, 6(4), e210–e221.
- Sidhu, G. S., & Kumar, R. (2021). The COVID vaccine: Is it the beginning of the end? *International Journal of Medical and Dental Sciences*, 10(1), 1917–1918.
- Solís Arce, J. S., Warren, S. S., Meriggi, N. F., Scacco, A., McMurry, N., Voors, M., Syunyaev, G., Abdul Malik, A., Aboutajdine, S., Adejo, O., Anigo, D., Armand, A., Asad, S., Atyera, M., Augsburg, B., Awasthi, M., Eden Ayesiga, G., Bancalari, A., Nyqvist, M., et al. (2021). COVID-19 vaccine acceptance and hesitancy in low- and middle-income countries. *Nature Medicine*, 27, 1385–1394.
- Troiano, G., & Nardi, A. (2021). Vaccine hesitancy in the era of COVID-19. *Public Health*, 194, 245–251. <https://doi.org/10.1016/j.puhe.2021.02.025>
- U.S. Census Bureau (2021). *Household Pulse Survey COVID-19 vaccination tracker*. U.S. Department of Commerce. Version 8.11.21.0). Retrieved from <https://www.census.gov/library/visualizations/interactive/household-pulse-survey-covid-19-vaccination-tracker.html>
- U.S. Department of Health and Human Services. (2021). *Ask an expert: Should I wait to get a covid vaccine?* [Youtube video]. <https://youtu.be/IRb421WdEU0>
- U.S. Department of Veterans Affairs (2021). *Have questions before you get your COVID-19 vaccine?* Retrieved August 28, 2021 from <https://www.va.gov/initiatives/have-questions-before-you-get-your-covid-19-vaccine/>
- U.S. Food and Drug Administration (2021). *COVID-19 vaccines*. Coronavirus disease 2019 (COVID-19). Retrieved August 27, 2021 from <https://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/covid-19-vaccines>
- Vindegaard, N., & Benros, M. E. (2020). Covid-19 pandemic and mental health consequences: Systematic review of the current evidence. *Brain, Behavior, and Immunity*, 89, 531–542.
- Wermers, R., Ostroski, T., & Hagler, D. (2021). Health care provider use of motivational interviewing to address vaccine hesitancy in college students. *Journal of the American Association of Nurse Practitioners*, 33(1), 86–93.
- Williams, J. T., O’Leary, S. T., & Nussbaum, A. M. (2020). Caring for the vaccine-hesitant family: Evidence-based alternatives to dismissal. *Journal of Pediatrics*, 224, 137–140.
- Winter, L. A. (2019). Social justice and remembering “the personal is political” in counselling and psychotherapy: So, what can therapists do? *Counselling and Psychotherapy Research*, 19(3), 179–181.
- World Health Organization. (2019). *Ten threats to global health in 2019*. <https://www.who.int/news-room/spotlight/ten-threats-to-global-health-in-2019>
- World Health Organization. (2021). *COVID-19 advice for the public: Getting vaccinated*. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/covid-19-vaccines/advice>
- Zhang, C.-Q., Leeming, E., Smith, P., Chung, P.-K., Hagger, M. S., & Hayes, S. C. (2018). Acceptance and commitment therapy for health behavior change: A contextually-driven approach. *Frontiers in Psychology*, 8, 2350. <https://doi.org/10.3389/fpsyg.2017.02350>

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