# Let's Use Massive Open Online Interventions (MOOIs) to Prevent Depression Worldwide

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<u>Transcript</u>:

What I want to talk about is: let's use massive open online interventions (MOOIs) to prevent depression worldwide.

I want you to travel back in time with me to September 1972. The place is Eugene, Oregon, the University of Oregon. I just arrived there at 22 years old. I just arrived to begin my doctorate program in clinical psychology. Now, the reason I'm there is because I want to become a therapist. I want to go back to San Francisco, which is where I immigrated and open up an office to treat Latinos in Spanish. That's my reason for being there. One of the first courses I take is called "Community Psychology" and they assign me to go to a community mental health center board meeting, at which a psychologist named Richard Ingraham gives an impassioned talk about primary prevention. I had never heard the term before. I'm sitting there and what he does is, he chides those of us around the room, psychologists, psychiatrists, social workers, and says to us, "You sit there in your offices and you wait until people suffer enough for them to have to come to see you. What you ought to do is go out into the community and share what you know about mental health so that people don't have to suffer and they don't have to come to see you."

Now here I am, just about to start this five-year program to become a therapist and this guy is telling me that it isn't enough. You can imagine what I was thinking. I could have gone a couple of ways. But what happened is that I had a conversion experience. I mean, his message was so compelling that it made sense. Why not prevent these disorders? Now, I just came from Stanford. My senior thesis advisor was Albert Bandura: social learning theory, self-efficacy, personal agency, all these things. You learn, you learn from your social environment, how you think, how you behave, even how you feel. So, the idea of teaching people these things to prevent disorders made perfect sense to me within that theoretical framework.

So, what I decided was to try to spend about half of my professional time on prevention and half on treatment. So, I sought out professors who were interested in prevention Jim Kelly, who was teaching at Oregon at the time. And this is my first publication, *The Prevention of Mental Disorders*, in 1975. I was 25 years old and there was a section in there about prevention of depression. I did my dissertation with Peter Lewinsohn, who's one of the pioneers of behavioral approaches to depression and we published this book, which was a randomized control trial looking at pleasant activities, increasing pleasant activities, increasing interpersonal skills, change in cognitions. The protocols of the dissertation to this book, which Pim has actually translated to Dutch and has been translated into other languages as well, so here I was already trying by putting it into this book to share this knowledge with people, you know, not just professionals but laypeople as well.

Six days after I finished at the University of Oregon, I began working at San Francisco General Hospital. My office is on the 7$^{th}$ floor; I just had my 38$^{th}$

anniversary on September the 6th here. And this is the view from my window; this is the Mission district, the Latino *barrio* in San Francisco, which is where I grew up when I immigrated at the age of 10. So, for 38 years I have been serving the community in which I grew up. Now, I try to do prevention trials with NIMH funding. But when the grants ended or they were not renewed, I had to go back into treatment. I founded a depression clinic, which I ran for 10 years providing individual and group cognitive behavioral therapy in Spanish and English at no charge to primary care patients. The way I was able to get away not charging them was by supervising psychology residents, psychology interns, and postdocs. At the end of the 10 years, the hospital decided it was such a good thing to have for patients there that they took over the clinic, which was wonderful and it's been running for the last 20 years. We just had our 30th anniversary since the start of the clinic, but I'm no longer in charge of the clinic, which is good because I was able to get back to prevention. Now, one of the things that was happening is that, you know, the field was saying, "you can't do this". This is the National Institute of Mental Health, 1984, they published this and they say, "onset of clinical prevention cannot be prevented." This is the wisdom, the professional wisdom, of the field at the time. So, what I tried to do is I tried to seek how to change this "truth", by doing work, research first on prevention of depression and trying to understand what it is we needed to do to change that statement.

I was lucky enough, partly because of the work I had been doing on this, to be named to two committees the Institute of Medicine had on the prevention of mental disorders. One in 1994 and one in 2009. There was one other person who served on both committees, Bill Beardslee, whom many of you know, psychiatrist from Harvard, and in 2012, we published this paper in the American Psychologist: "Major depression can be prevented, dammit!" The editor took out the last word. So, Bill and I and Yan Leykin who was a postdoc with me and is now on the faculty at Palo Alto University with me.

So, moving towards MOOIs now. I had been doing online randomized control trials on smoking cessation, and at the end of the grant period I had to decide whether to shut down the site and or not and I just couldn't bear shutting down the site. It was getting a good quit rate, comparable to that of nicotine patches. So I was able to get a donation to keep the site going and we morphed the site, we adapted it to a participant preference site, which mean that anybody who came in could pick any of the elements that we had used in the development of the randomized control trials. The only requirement, the only eligibility criteria was they had to be 18 years of age. That was because the IRB, the Institutional Review Board, would not allow us to consent minors unless we got consent from both the mother and the father and I have no idea how to do that, especially with a worldwide study.

So, we just published this a couple months ago. Massive Open Online Interventions: A Novel Model for Delivering Behavioral-Health Services Worldwide. What I wanted to do today, is give you some idea as to why I think this might be a way of preventing depression worldwide. We're the Global Consortium after all, right? We should be doing global studies. So, MOOIs, pronounced *moo*-ees, like "muy bueno" and Filip (Smit) just told me that MOOI means "beautiful" in Dutch. I had no idea. This is basically inspired after Massive Open Online Courses, you've heard of

MOOCs: Massive Open Online Courses. One of the reasons I was interested in doing this is because in our smoking cessation Internet studies, little by little we're getting more and more people from throughout the world. The darker the country, the more people who are coming in to the site. I didn't plan this. I just found out through doing the study that you could do this. We began the study in 1997, now it's no surprise to anybody but in 1997 it was still fairly new. So we had almost three hundred thousand people come to the participant preference site, from almost every country in the world. Out of those, we were able to give everybody who landed on the first page a stop smoking guide, an evidence-based stop smoking guide that has a 10 percent quit rate. So, if everybody downloaded, and I don't know if everybody did, if they downloaded it and used it, we might have helped 30,000 people quit smoking. At least, the potential was there. In eligibility: 18 years of age. A lot of people were less than 18 and they couldn't enter the study. I'll mention more about that. The idea of MOOIs, like MOOCs, is that they would be open to anyone globally. They would ideally be free to help hundreds of thousands of participants. And we could do this because these would be self-help, automated, and thus non-consumable, because they don't require a person on the other end. These are not guided interventions which do require someone at the other end, they are totally self-help automated. Now, this thing about it being ideally free is really important to me. I believe knowledge is this kind of thing that when you give it away, you don't have any less. Thus, we should be giving it away. I mean, I benefited so much from the educational system in California. The work I do should go back to the people, not just in California, why not share it everywhere? They say patriotism is a wonderful thing, but why should it stop at the border?

Depression prevention should be freely available to the world. You've probably run across this quote from Jonas Salk, who when asked who owned the patent on his vaccine against polio, he said "The people, I would say. There is no patent. Can you patent the sun?" Now, I find this very inspiring. So I want you to actually hear him say this. [VIDEO]

Now, he was dealing with the polio epidemic. Imagine this, imagine your child like this. Imagine your child like this. Depression causes this kind of suffering, but it's not visible. We know depression causes great emotional suffering. Now, they did the March of Dimes, I don't think we can do a March of Dimes. We need to come up with some other ways of sustaining this kind of approach. Of course, what's going to eventually happen is that we will need to do this as a group. I mean, he gets the credit for a lot of this. Obviously, he was working with teams but…His work is used worldwide, why not use ours worldwide. Now, he got the credit as, you know, the man. It's named after him. I think now we would do it as a group. As a group we would crowd source the interventions, the dissemination, all of that. So, what I want you to do is rather than ask <u>whether</u> this can be done, which gives a yes or no answer, I want you to think about <u>how</u> it can be done. And that yields inexhaustible multiple paths, so why don't we do this.

So, first, one of the problems with MOOCs as well as MOOIs is attrition. We know this. MIT, The Massachusetts Institute of Technology, has this course; 155,000 people registered, only 7,175 [sic] passed the course. Of course, that's 4.6%. If you were doing a randomized control trial and you had 4.6% follow-up rates, would you

be disappointed? Probably. But, one of the people involved with this course said, "If you look at the number in absolute terms, it's as many students as might take the course in 40 years at MIT." So, we should say, "7000 passed the course!" That's something to yell about. Well, in our study, in our participant preference trial, we had great attrition, too, but we actually had data on almost 3,500 smokers who gave us data saying they had quit. To help that many smokers quit, it would have taken over 3 and a half million dollars worth of nicotine patches. A nicotine patch costs about $3 in the US and if you use it for 10 weeks, so that's 3 times 7 times 10 is $210. And only 20% of people quit, so you need five times as many people to use it. Anyway, trust me, we'll save this amount of money. We would need 70 years of counseling. We were able to do this in 2 and a half years, for about $200,000. And the reason we were able to do it with that small amount of money is because the site was already up. It was already running. We had a grant that paid for the development, so all we had to do is keep it posted. Now, another barrier is consent. Of those eligible, only about half of the people in Spanish and English gave us consent. That means that half of these people who wanted to do this didn't get to do this because they wouldn't sign consent. So one of the things we're doing now is: why not let people who don't consent use the site? It doesn't cost us anything extra, it's automated. So, in our study now at i4health, which is the Institute for International Internet Interventions for Health at Palo Alto University, which is where I am now, there are studies in which we give people this choice. The first one says: I give consent to have my data be included in official research reports. The other one says: I want to continue using the site, but I do not give consent. Do not include my data for official research reports of this study. So we flag those data and we don't use it for research, but we allow people to use this. If it's going to be helpful to them, why not let them have it?

Audience member: "Can I ask you something about this? In ordinary patient care if you use anonymized data that you collect anyway during treatment, you don't even have to ask them."
Muñoz: Our IRB did ask us for consent.

Audience member: [unintelligible]
Muñoz: You know, I don't have those figures. Our IRB still asks us to include only people over 18.

I'm going to share now some work from Yan Leykin whom we just recruited to Palo Alto University. He's been doing Internet screening and interventions for depression. This is the site for the Mood Screener and people who search for Depression online can get a free Mood and Depression Screener. He's been doing this in five languages: English, Arabic, Chinese, Spanish, and Russian. And he's gotten to people from basically every country and territory with those five languages. Now, his only eligibility criteria is that you have to be 18 or older. Look at this. Look at the percentage of people who are under 18 who want to use this, but we don't let them because they are not adults. We've got to solve this one somehow. Yes! Let's talk about that!

Depression is related to suicide. In the past few weeks, look at this. The number who screened positive for depression using a mood screener that has nine symptoms for depression. The proportion who meet criteria is so high, and then these are the people who say they had a suicide attempt in the past two weeks: 10-20%. Now, you'd think these people should be getting treatment, but let's look at how many are. Current depression: people with current depression. How many people are getting antidepressants or psychotherapy? Ten to twenty per cent. So about 80% of the people or 90% of the people are getting <u>nothing</u> when they come to the site. How about those people who are likely or very likely to commit suicide in the next few days. Not much better. We need to let people like these have access to our interventions. There's a great need here. We don't have to worry about taking business away from therapists.

Steve Hollon: "Have you shown these figures to the IRB and what…? That's incredible!"

Muñoz: Okay, so this is the call to action: What we need to do is fill in this grid of MOOIs in which the columns are health problems, the rows are languages. Of course, this would be an ever-growing grid. It would never end. You could think of other dimensions, which would be gender, age, education, socioeconomic status. We need to be doing this. Obviously, our group is focused on this one. What is it likely that we would be able to do? I think these are about the maximum results you might be able to get. About a third of people would go back to normal, about a third would improve and about a third would have no effect. This is just off the top of my head. This is what we might be able to do at best. How about prevention? We've talked about how we could reduce incidence by half at best. It will take us a while to get there, but this is a good goal, too. So, what are our options in terms of doing this? What I'm suggesting is that we begin with MOOIs, which are self-help, automated as a basic level of care for everybody in the world. And then, you would add to that those MOOIs tools that can be used by local helpers, family members, relatives, religious leaders, etc. who have used, for example the MOOIs, and might be able to provide access to them through tablets or laptops, etc., for people who don't have access to them. And would help people to adhere to the MOOIs. Because we know adherence is a big problem, especially with self-help automated sites. For localities that have the money, they should provide guided interventions. Pim (Cuijpers) has done a lot of work showing that this is better than this. It's more effective. But not every locality has the money to do that. And then, we should also go into health and mental health services in which the MOOIs would be adjuncts. Adrian Aguilera, who is a member of our group, is doing text messaging as an adjunct to CBT for depression at San Francisco General Hospital in Spanish and English. The Spanish-speaking patients love it. They feel much more cared for, even though we tell them that the text messages are being generated automatically. Obviously, we eventually need to go to mental health specialty services. We need to do primary care screening and treatment; community outreach using mass media outreach so that people can actually identify themselves as in need of care. And then, eventually, something like the ODIN project. The ODIN project is the Outcomes of Depression International

Network, Norway is part of that. Pim, I think you're part of that group, right? What they do is they go house to house, knock on doors, and ask people if they will allow themselves to be screened for depression, in this case. And if positive for depression, they offer them treatment. Including even in their own home. Now, it's unlikely that this is going to be happening worldwide. It's very expensive. So, that would be kind of the "Cadillac"/"Tesla" service. But, I think we should have as a basis. The higher here the greater the cost, but the lower the greater number of people helped. And MOOIs would be a basic level of care. MOOIs alone would be self-help, automated. Again, we have MOOIs, we go to helpers. We would build it in somehow so a local helper could be involved. Paid coaches who are trained, and then as adjuncts to traditional healthcare. So the MOOI would be like this blue baby blanket, which would be stretched over all the world and places that have the money to provide face-to face and live services would still be able to provide it. I'm not saying we should replace these with MOOIs. That's not my intent at all. It's just that we need to have available where there are no services like this. And places that have money for guided adjuncts should do so, and places that have money for everything should do everything. But then there would be no gaps. Places which have no clinics, which have no money for guided adjuncts would still have the MOOI available there; accessible at no charge. Now, why this focus on worldwide stuff? Partly, it's because I didn't grow up there, I grew up here. I grew up in Peru in a town called Chosica near Lima, 40 kilometers east of Lima. This is what Chosica looks like; it's a barren area. The coast of Peru is a desert. These are the foothills of the Andes; no vegetation, really, totally barren. The only life-giving element here is the river, the Rio Rimac. R-I-M-A-C. When I was ten my mother say me down and said, "Your father finished primary school, I finished high school. We want our kids to go to university but we don't have the money to send you there so your father decided to go to the US so you can have a good education and when you finish you'll come back to Peru and share what you've learned." Like many immigrants, we haven't gone back to Peru, but through the Internet I have been sharing what I have learned. I got an email from somebody there asking me if I was the Ricardo Muñoz who went there to school in the 1950s. So I reached Chosica. This picture also reminds me that the Internet is kind of like a river. A river of information or in our case, interventions. I'm not talking about health information, that's like WebMD, right? I'm talking about health interventions. And we want the water to be pure. We want the interventions to be evidence-based and hopefully not harmful so we can reach towns like this, thousands of towns like this, all over the world. We could do this. This is doable. Totally doable. We could blanket the world with MOOIs so we can help as many people as possible.