

This is a transcript of The Conversation Weekly podcast episode 'Discovery: Celibacy's surprising evolutionary advantages,' published on October 31, 2022.

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Gemma Ware: Welcome to the Conversation Weekly. I'm Gemma Ware in London. Today we've got the first in a new series we'll be running through this channel called Discovery. We're gonna be chatting with researchers about something cool that they've studied, that we find, well, just fascinating.

This one comes from something that I read recently on The Conversation that made me do a double take. It goes to the heart of questions about human behavior, about why people might make choices that, on the face of it, would seem to go against their best interest. And by best interests here, I mean in terms of evolution and Charles Darwin's idea of the survival of the fittest. Darwin's argument was that evolution happens by a process of natural selection, and that those best adapted to their environment are more likely to survive and thrive, and so are their offspring.

But what about people who remain celibate, who devote themselves to a religion and decide not to have any children? Where does that fit into the bigger picture of the evolution of human behavior? That's what Ruth Mace, a professor of evolutionary anthropology at University College London in the UK, wanted to find out. To do so, she and her colleagues went to a very remote place in China, a province called Gansu, high up on the eastern Tibetan Plateau.

Ruth Mace: The higher you get up, you sort of switch from a more wooded landscape up into this just huge grassland, and once you start switching from areas which are sort of predominantly cattle to predominantly yaks, then you realize, you're really up in what's known as the Tibetan Plateau, which is this really rather unique landscape. So obviously, it can be extremely cold in winter, but in the summer it rains quite a bit. Sometimes the sun comes out. It's very beautiful. And people are still living a somewhat nomadic life. Traditionally, I think there would've been very few settlements except the monasteries. So the monasteries became the kind of focus of very small towns.

Gemma Ware: These monasteries are one of the reasons why this area is so fascinating to researchers like Ruth.

Ruth Mace: It was just a very striking feature of the Tibetan landscape that lots of families, at least one of the family members had joined the monastery.

Gemma Ware: For the most part, these monks were sent to the monasteries by their parents as very young boys, aged seven or eight.

Ruth Mace: Historically, we've got accounts of like, one in seven boys being sent to the monastery, or even in some places, one in three. I mean, it has been described as mass monasticism, and I think that the number of people living in monasteries now is reduced. But there were times in history, especially before the cultural revolution, where these monasteries were really quite huge. They used to be centers of political power. They still are sort of centers of education. So some of the larger monasteries will have, like, schools of philosophy or schools of religion or schools of medicine. So they did sort of remind me of universities in many ways.

Gemma Ware: Now, a monastic life of celibacy is of course not unique to Tibetan Buddhist monks. It happens across religions, and Ruth says that when it's a rare phenomenon, it doesn't really need much explanation.

Ruth Mace: But if you've got societies where a very large proportion of the population are either choosing or being chosen for them, a celibate life, which is what's happening with Tibetan monks, then that's something that is kind of on the face of it, looks very maladaptive.

Gemma Ware: By maladaptive. Ruth means that a life of celibacy doesn't it appear to be doing your legacy on Earth much good.

Ruth Mace: So just on a very simple idea, like, if some individuals are having more children survive than other individuals, then those individuals obviously leave more representatives in future generations. And so if anything's being passed down vertically, be it genes or learning, or culture, anything like that, then whatever's being passed down is going to become more common in the next generation.

Gemma Ware: Ruth is intrigued by these kind of questions, about what our behavior as humans has to do with evolution. This kind of research is called human behavioral ecology.

Ruth Mace: So human behavioral ecology is trying to understand human behavior as an adaptation to the environment that people live in.

Gemma Ware: She started out studying animal behavioral ecology, but then switched to humans.

Ruth Mace: I started off studying things like reproductive strategies as an adaptation, but I've always been interested in the things that, on the face of it, don't look very easy to explain. You know, why don't we all have 15 children? Why, if we are an evolved being—I did quite a lot of work on the evolution of menopause—why do you suddenly stop being fertile, you know, 20 years before you die? These are all questions that are really interesting to try and understand how

they evolved. And then when it's something like menopause, people have to accept, it's an evolved adaptation, because it's something in your physiology. Whereas with behavior, there's been quite a lot of people saying, oh, well it's not really evolved. It's just some strange cultural kind of artifact, and culture just goes off and does its own thing and makes us do weird stuff. And that might also be true, but I think some of us also think, you know, others have used a phrase, culture is on a leash in a way. It's not like anything's gonna happen.

Gemma Ware: To Ruth, celibacy is one of these evolutionary puzzles, and so along with some of her colleagues at UCL and at Lanzhou University in China, she set about trying to investigate it. And they chose to focus on the Amdo Tibetan people who live in villages high up on the Tibetan Plateau. They wanted to find out how having a brother or an uncle who is a monk affects a family's livelihood, and to put it crudely, their reproductive success. To collect the data they needed for their study, they had to knock on doors—530 of them. And they asked the inhabitants if any of their family members were monks.

Ruth Mace: We actually chose a study site where we knew there was quite active monastic communities, but we weren't collecting data from the monastery themselves. We were collecting data from the families. So we did basically what's known as a kind of socio-demographic survey where you just pick certain villages and then you just go house to house. And then you just chat with the head of household or whoever.

Gemma Ware: So they invite you in and what happens? Did you get, did you get served to drink or—

Ruth Mace: Yeah. I mean, you asked them if they want to, and most, most you explain what you're doing, and most of them are quite interested and they're happy to agree.

Gemma Ware: You wanted to go back and find out about their different generations as well, didn't you?

Ruth Mace: Yep, yep. So we asked about everybody and we asked who everyone's parents were. So you can sort of link everyone in a kind of genealogy, and that's really useful if you're trying to work out, like, reproductive success, which is what we were, you know, interested in. So we asked everyone who their parents were. So of course some of their parents were like, long dead, but most of them could give some information so you can work out who's related to whom.

Gemma Ware: So I guess what, what you then had was this kind of detailed family tree for each of these, these households.

Ruth Mace: Yeah, so we kind of had a family tree for the village, in a way.

Gemma Ware: As Ruth and her colleagues began to look closely at these family trees, they started to understand what having a monk in the family actually meant.

Ruth Mace: So we looked at the reproductive success, which is just a kind of word which basically means counting the number of children that survive. And we looked at men who did and didn't have a monk brother. And basically, controlling for family size, we found that having a monk brother was actually a benefit to the brother. So if you had, like, two or three brothers and none of them were a monk, your wealth, which we measured mainly in terms of yaks, was lower.

Gemma Ware: So men with a monk brother were wealthier than men without a monk brother.

Ruth Mace: Yeah. You know, it's what's known as a patri-local society, which means that the men tend to stay put and inherit the houses from their parents, and the women tend to move at marriage. So basically wealth tends to go down the male line. So brothers will be competing for their father's wealth. Whereas for daughters, that competition is not there, because they're not inheriting very much from their parents at all. So the wealth of a woman largely depends on who she marries, whereas the wealth of a man depends quite a lot on what he gets from his father. So it's an interesting situation where brothers are in competition with each other, but sisters are not. And we think that kind of underlies why you've got so many males going into the monastery and not females.

Gemma Ware: They found that being wealthier wasn't the only advantage of having a monk for a brother. Men with a monk brother also had more children themselves.

Ruth Mace: You basically had more offspring, and your wife had them at an earlier age. So that's also a measure of reproductive success. So if you think of evolution progressing, you know, people who are reproducing earlier than somebody else are gonna leave more descendants in future generations.

Gemma Ware: Ruth explained this to me in terms of evolution. So it's an advantage to give birth younger because if everyone has the same number of children, then over time those people who give birth younger will be ahead in reproductive terms. This means their descendants will be taking up more and more of the population at any given time. And since the late 1980s, most families in these Amdo Tibetan villages have mostly had the same number of children. That's thanks to strict birth control policies introduced in China in the late 1980s.

Until a few years ago, most of China and its majority Han Chinese population were only allowed one child, that's the famous one child policy, but as ethnic minorities, Amdo Tibetans were among the groups allowed to have three children, and that's still the case today.

Ruth found that the advantages of having a family member in the monastery also extended back up the family tree to the grandparents.

Ruth Mace: A key finding was that grandfathers who had sent one of their sons to the monastery were not doing any worse than those that hadn't, and that in many cases, they were doing better. So, what looked on the face of it like a really costly decision for your reproductive success, to say one of your children has to go and live a monastic life where they don't reproduce, they don't follow normal family life. In fact, you know, the family was thriving in the sense that the other brothers were doing better and therefore there was no cost.

Gemma Ware: Were you surprised when you saw that?

Ruth Mace: I was surprised, but then it sort of seemed to make a lot of sense. You know, it's always been an area where there's been some competition between brothers because there used to be some polyandry in Tibetan groups where several brothers would marry one woman, which to be honest, was very unpopular with the women, as you can imagine. But it was a similar mechanism, I think, you know, they want to maintain the integrity of the farm or the herd, rather than trying to split it into, like, three different farms, which would've been unsustainable. You know, there's different cultural mechanisms for trying to basically prevent this competition between brothers, and one of them seems to be sending them off to the monastery.

Gemma Ware: What this suggests Ruth taught me is that there could be some evolutionary advantages to a parent sending their child to a monastery, and not the evolutionary costs that you might expect with such a decision. Now, of course, not all monks in this area are sent to the monastery as young boys by their parents. Some do choose to go on their own when they're older. Ruth's questionnaires didn't actually track this, so they didn't know when and why a brother or a son had gone to the monastery. They just knew that somebody had. But they wanted to test if the decision to go voluntarily could have its own evolutionary advantages.

So one of Ruth's colleagues, Alberto Micheletti, created a mathematical evolutionary model to see whether people would actually evolve to choose a celibate life.

Ruth Mace: And if you just try and make it evolve without involving the parents, then it doesn't make any sense, because basically, you're giving up reproductive slots in your village, as it were, and just sort of giving them to someone else, and that that sounds like that's maladaptive. Like, why would you do that?

Gemma Ware: The model suggested that there were no evolutionary benefits for a man to voluntarily choose a life of monastic celibacy, but that it was an evolutionary benefit to the parents to send one of their young sons to become a monk.

Ruth Mace: If you look at the cost and benefits for the parents, it's rather different because they have the interest of all the sons equally. So I think it's not that unusual either in the animal kingdom or indeed in some human social systems for parents to want to — it's almost like they're sacrificing one child for the benefit of another. So that's not unheard of.

Gemma Ware: So it basically shows that celibacy can actually be a form of natural selection if it's all down to the parent.

Ruth Mace: Yeah, I mean, the technical term is what's known as parent-offspring conflict. In other words, the interests of the parent are not exactly the same as the interests of the offspring. And you know, you can see that in birds. I mean, you can see the stork throwing the smallest chick out of the nest. This is not in the interest of the little chick, but it's in her interest to like, she only wants two offspring, she doesn't want three, right? So we think this might be kind of a human case of parent-offspring conflict, whereby if the parents had no row in the decision, it probably wouldn't happen very often or it would just happen at low frequencies. But if the parent's in the driving seat, then it can happen at quite high frequencies.

And we think the reason they're sent so young, I mean, if you're sent at the age of seven or eight, you don't really have much say in the matter, and everyone's convincing you this is a great idea, and off you go. And then you get into a system and I think it is quite hard for people to join that system a lot older. That would be quite a rare decision.

Gemma Ware: So obviously celibacy isn't only a religious choice globally, you know? People choose to be celibate for many reasons, or they might be forced to be celibate for health or medical reasons, for example. So, what you are saying is that, this particular community, in your analysis of this community, shows that when celibacy is a deliberate choice, it's not necessarily going to bring much evolutionary advantage, but if your parents do it for you, then it might.

Ruth Mace: Yes, there might be circumstances where it's advantageous for parents to encourage or force a child to go down that path, yes. And the Tibetan Plateau seems to be one of those environments.

Gemma Ware: Talking to Ruth gave me a glimpse of what the future may hold for these Buddhist monasteries. In some parts of China, the state now forbids young boys from being sent to a monastery or to any other religious institution. They can only go when they're 16 or 18, but by that age, it's much less likely that a young man will choose to become a monk himself. So that could mean an end to this type of mass monasticism in this region.

Ruth insisted to me that she's not trying to make any kind of moral point about the Tibetans' decisions to send their young sons to a monastery, or for that matter, on anything else that might look to some like a harmful cultural practice.

Ruth Mace: I'm more making a sort of evolutionary point of like, how do you explain the origin of this behavior? So I don't really want to say whether it's good or bad to send your child to the monastery. I think we are just trying to add a perspective from behavioral ecology is just, it's not the only way of looking at it, but it's just another way of looking at it that we feel adds some understanding to what's going on.

Gemma Ware: Interesting. Well, thank you so much, Ruth, for explaining all of that and your research to us. It's been a pleasure talking with you.

Ruth Mace: Thank you!

Gemma Ware: That's it for this episode. I've got a few people to thank. First to Ruth's colleague, Zhou Liqiong, a PhD researcher at Lanzhou University in China; My colleague here at The Conversation in London, Miriam Frankel, who worked with Ruth and Alberto Micheletti on their original story for The Conversation—we'll put a link to that in the show notes. And thanks also to our global executive editor, Steven Kahn, to Alice Mason for our social media, and to Soraya Nandy for help with our transcripts. And final thanks to Graham Griffith. You can find us on Twitter @tc_audio, on Instagram @theconversationdotcom, or email us on podcast@theconversation.com. You can also sign up for The Conversation's free daily email by clicking on the link in the show notes. If you like what we do, please support our podcast and the conversation by going to donate.theconversation.com. This episode was produced by Mend Mariwany and me, Gemma Ware, with sound design by Eloise Stephens. Our theme music is by Neeta Sarl. Thanks for listening.