

## *Polyphony, Monophony and Stuttering*

On 16<sup>th</sup> October 1989 I was in the lobby of a Moscow hotel trying to book accommodation for a few days. It was always a huge problem finding a place in any of the Moscow hotels during the existence of the USSR. 'No Vacancies' was a universal reply at virtually all Moscow hotels, even if the hotel was half empty. Overpaying and bribing personnel at the counter was the usual way to get accommodation, but even this method could not always guarantee you a place. This time my position was very strong, as I had an official invitation from the Federal Clinic of Speech Pathology to attend the symposium 'Treatment and Rehabilitation of Patients with Speech Disorders', signed by Professor Shklovsky, and my name was on the list of guests.

'Which hospital do you work at?' asked me a woman at the counter without looking at me, busily filling a form.

'I do not work at a hospital. I work at Tbilisi State University,' I answered.

'At the University? What is your profession?'

'I am a musicologist.'

She stopped writing and looked at me.

'You are in the wrong place. We are accepting only speech pathologists who have arrived in Moscow for the international symposium. We do not have space for any other guests.'

'I also was invited to this symposium'.

'What does music have to do with speech pathology?'

So I gave a brief summary of my proposed conference speech at the hotel counter. I am not sure whether my explanation of the possible links between the distribution of polyphony and stuttering prevalence impressed her, but she nodded when I mentioned the well-known fact the stutterers do not stutter when they sing. So the link between music and stuttering was established. She checked my name one more time against the list she was given from the conference organizers and I was in.

I must confess that I was asked this question several times by different people, starting from my mother. So what is connection between choral singing and stuttering?

The genetic nature of stuttering is well established. Another well known and accepted idea about stuttering links this from of speech pathology to our evolutionary past. According to the widely shared idea of Robert West, human speech is a function overlaid on ancient systems for eating and respiration, and because speech is one of the latest abilities we acquired, it is one of the most readily lost or impaired (West at al, 1939).

As articulation obtained a high survival value in human society, it would be logical to anticipate the eventual decrease of the number of stutterers throughout human history. In this context it is interesting that speech pathologists noticed the general tendency towards reduction of the numbers of stutterers in contemporary

Joseph Jordania (2011). "Polyphony, Monophony and Stuttering". In: *Why do People Sing? Music in Human Evolution*. The publishing program Logos.

society, and try to find explanation to this fact with different factors (Bloodstein, 1995).

According to the suggested in this book model that different human populations shifted to articulated speech at different times, it is logical to propose that different human populations must have different levels of prevalence in stuttering. The populations that shifted to articulated speech earlier (East Asian, Australian Aboriginal, and Native American populations) must have a lower rate of stuttering, and those populations that shifted to speech later (European and particularly sub-Saharan African populations), must have a larger number of stutterers.

So what is the real picture in cross-cultural studies of stuttering prevalence?

Without going into details of other stuttering-related factors such as gender (boys stutter more than girls), and age (children stutter more than adults), let us go directly into the cross-cultural studies.

There are two general approaches towards the prevalence studies of stuttering in different cultures:

- (1) Most experts believe that all the populations of the world must have roughly the same prevalence of stuttering because, as one speech pathologist wrote to me, 'there are no compelling reasons to believe that the prevalence would be different in different populations'. This attitude is dominating among contemporary speech pathologists, and followers of this idea are not interested in cross-cultural prevalence studies in different populations, as they believe there will be no differences among different populations.
- (2) Another, much smaller group of scholars believes that there can be substantial differences, and there are a few cross-cultural studies on this subject. We will soon discuss the results of these studies.

As you would expect, most studies on stuttering were done in European countries and North America, mostly by European scholars. There are quite detailed accounts of the incidence and prevalence of stuttering in most European countries. By the way, 'incidence' and 'prevalence' are two different, although linked, factors. Prevalence is the number of stutterers found in a population at any given time and is easier to estimate. Incidence is the number of people from a population who have ever stuttered in their lives (mostly in childhood). Most speech pathologists agree that about 1% of the general population stutters. Stuttering among children is much higher – about 5%. Most children stop stuttering without any help as they grow older. These figures are, as you may guess, from Europe. Most speech pathologists believe that the European figure (1% prevalence) is universal for all regions of the world (Bloodstein, 1995).

However, as I have already mentioned above, there are a few important cross-cultural studies and recent publications pointing to existing differences in the distribution of stuttering among different populations. Let me briefly discuss two different and possibly the best studied non-European populations: Native American and sub-Saharan African populations.

Joseph Jordania (2011). "Polyphony, Monophony and Stuttering". In: *Why do People Sing? Music in Human Evolution*. The publishing program Logos.

**Stuttering among Native Americans.** The issue of stuttering among North American Indians was one of the hottest and most central in speech pathology for a few decades of the 20<sup>th</sup> century.

James Hunt was arguably the first scholar to note, over 150 years ago, that American Indians did not stutter. This fact was re-discovered in the well-documented studies by Wendell Johnson and his students in the middle of the 20<sup>th</sup> century. Johnson claimed that American Indians did not have stuttering individuals and even had no actual word for 'stuttering' (Johnson, 1944). One of his students, John Snidecor, a professional speech pathologist who spent a few years in an Indian community, confirmed he had never met a full-blooded Indian who stuttered.

Johnson explained this fact by cultural factors. According to Johnson, all human children have a difficult and sensitive period when they are acquiring speech. Different societies and even different parents have different attitudes towards this vulnerable period of childhood speech development. In some cultures adults pay too much attention to this normal stage of childhood development and they put unnecessary pressure on a child. They punish a child (sometimes physically), pointing out that she/he is stuttering, and actively try to stop a child from stuttering. This pressure, punishment and the label 'stutterer' deeply enters the child's mind and is the reason for the fear of speech and the associated social withdrawal. Therefore this is the main reason why stuttering does not go away and stays with a person for all his or her life. 'Stuttering starts in the ears of parents, not in the mouth of children,' was Johnson's famous slogan who believed his own lifelong stuttering had the same origin. His theory became known as 'diagnosogenic theory of stuttering'.

Johnson's theory dominated speech pathology for a few decades from the 1940s up to most of the 1970s. From the end of the 1970s the genetic approach towards the genesis of stuttering prevailed. According to the genetic theory, cultural practices are not so important, and it is instead up to the genes to decide the level of fluency for each individual. Genetic model could not actually explain the differences between the prevalence of stuttering in different populations, and as a result, all existing differences from different studies were claimed to be the result of insufficient and non-standardised methodologies.

Proponents of the genetic theory had a major victory over the diagnosogenic theory when they found that Johnson's and his students' claim about the full absence of stutterers among Indians was an exaggeration. It was suggested that among Indians it was usual to hide individuals with health problems. Most importantly, it was also found that some Native Americans from the tribes Nootka, Kwakiutl and Salish had not only a couple of stutterers, but quite a high number of stuttering individuals (about the European number of 1%).

Amazingly, despite the unparalleled interest of speech pathologists in stuttering Indians for decades, the rate of prevalence in stuttering among most Indian tribes is still not available. From the available publications we can only assume that stuttering is present in all known American Indian tribes, but the actual prevalence might be considerably lower.

Joseph Jordania (2011). "Polyphony, Monophony and Stuttering". In: *Why do People Sing? Music in Human Evolution*. The publishing program Logos.

### **Stuttering Among Sub-Saharan African Populations.**

The available data from a number of publications on the subject shows that the prevalence of stuttering among some sub-Saharan African populations and their descendants in the USA is higher than in European populations. According to some publications, the prevalence in some sub-Saharan African populations reaches 5.5% and even 9.2%. Summarizing prevalence studies, Eugene Cooper and Crystal Cooper concluded: 'On the basis of the data currently available, it appears the prevalence of fluency disorders varies among the cultures of the world, with some indications that the prevalence of fluency disorders labeled as stuttering is higher among black populations than white or Asian populations' (Cooper & Cooper, 1993:197).

**What About the Rest of the World?** Unfortunately, other major regions of our planet have not been so extensively studied, so the data is either very small or completely absent. For example, according to the data collected by Morgenstern more than half a century ago, there is no (or a very low incidence) of stuttering among Australian Aborigines and Polar Eskimos. Preliminary data also suggest that stuttering is also very reduced among Siberian peoples and Kazakhs from Central Asia.

The existing information (as limited as it is) about the very low rates of stuttering among American Indians, Polar Eskimos and Australian Aborigines (carriers of monophonic singing traditions) on one hand, and the very high rates of stuttering among the descendants of sub-Saharan African populations (carriers of polyphonic singing traditions) on the other hand agrees with the suggested model: cultures with polyphonic singing traditions seem to have much more stuttering individuals than the cultures with monophonic singing traditions. Even the higher stuttering prevalence in some Indian tribes (Nootka, Kwakiutl and Salish) confirms this correlation, as these are exactly the tribes who have the most polyphonic singing traditions among Native Americans.

**What About Stuttering Among the Chinese?** Data about the prevalence of stuttering among the Chinese is absolutely crucial for our discussion. According to my model, the ancestors of Chinese populations shifted to articulated speech the earliest, therefore the prevalence of stuttering among Chinese populations must be considerably lower than among European and particularly sub-Saharan African populations.

When I arrived in Australia in 1995, 'stuttering among the Chinese' was one of the central themes I researched at university libraries and then on the Internet. No publications were available on this subject. China did not exist in the world of speech pathology. Even the profession of speech pathologist seemed nonexistent in China (this was later confirmed to be true). I ended up going to Chinese restaurants and acupuncture centres and asking ethnic Chinese people if they knew a Chinese stutterer. Their reaction was very interesting. They usually could not understand what I was asking them. When I tried to demonstrate what stuttering is, they usually got the impression that I was asking about retarded individuals. When I told them that I was not speaking about retarded individuals, and that some of the brightest people in

Joseph Jordania (2011). "Polyphony, Monophony and Stuttering". In: *Why do People Sing? Music in Human Evolution*. The publishing program Logos.

human history (like Charles Darwin, or Winston Churchill) were stutterers, they were completely confused.

I ended up doing possibly the first research on the stuttering prevalence among Chinese. With the help of the 'Multicultural Interest Group' in Melbourne and the 'Speech Language and Hearing Association' in Singapore, I contacted speech pathologists in Singapore, Taiwan, Hong Kong and Malaysia and asked them to provide answers to a specially designed questionnaire. Responses were received from 33 speech pathologists, working with predominantly Chinese populations. I was particularly lucky that Sheree Reese, speech pathologist from Kean University (New Jersey, USA), got also involved in this research.

The results of our study indicated that the stuttering prevalence among the Chinese in Singapore is very low. Speech pathologists were seeing less than 1.5 stutterers in a year. Five speech pathologists claimed they have never seen or treated a Chinese stutterer during their entire practice. One of the respondents wrote: 'Some Chinese friends of mine who are stutterers have tried and tested many therapists for a "cure" to their stuttering'. This answer suggests that there is a possibility that some of the Chinese stutterers went to different therapists, and thus the same stuttering individuals might have been represented more than once. The number of hidden or 'concealed' stutterers who do not seek professional speech therapy was not large either, and all reported cases were mild. No moderate or severe 'concealed' cases were reported. Therefore, the information received from our respondents does not support the view that the main portion of Chinese stutterers never go to speech pathologists and their secret remains hidden in families.

A comparison of the stuttering populations of Chinese and Indian populations in Singapore and also Malaysia also points to a very small number of stutterers among the Chinese in comparison with Indians. Despite the difference in size of the Chinese and Indian populations in Singapore (Chinese – 76.4%, Indians – 6.4% of the population on July 1998 when the study was conducted) more Indian than Chinese stutterers were reported.

According to Singaporean speech pathologist Selena Young, editor of the Speech Language and Hearing Association Newsletter and practicing speech pathologist, cases of stuttering are several times rarer in Singapore than cases of cleft palate. Selena actually changed her research profile from stuttering to cleft palate specialist because, in her opinion, cleft palate patients were much more numerous, therefore she could be more useful to the Singaporean population as an expert of the cleft palate. I want to inform readers that the prevalence of cleft palate is usually several times lower than the prevalence of stuttering. Usually 1 in 700 children have a cleft palate, and about 5 in 100 children stutter (so the stuttering rate is on average 35 times higher!). Cleft palate among Chinese children is actually higher than in many other populations (about one case in every 250 births), but it is still 12 times lower than the European stuttering prevalence. If Selena Young's estimate is correct, the rate of stuttering among Chinese could be about 10 times or more lower than the average numbers for European populations, and the difference from some sub-Saharan populations will be much higher.

Sheree Reese and myself published an article on the online conference 'Stuttering Awareness Day', organized by Minnesota State University in 2001. In the

Joseph Jordania (2011). "Polyphony, Monophony and Stuttering". In: *Why do People Sing? Music in Human Evolution*. The publishing program Logos.

same year I also published a small paper in the newsletter of the Singapore Speech, Language and Hearing Association with similar conclusions regarding the very low incidence among Chinese. Of course, we should not forget that even if the incidence in China is much lower than in most European countries and the USA, we are still looking at many thousands of Chinese stutterers, trying to cope with their condition without the help of any available professional speech pathologists. Establishing the specialty of speech pathology in China would lead to more available means of therapy and would generally improve the life conditions of Chinese stutterers. Fortunately, as I have become aware, the profession of speech pathology has become established in at least some Chinese cities during the last few years with the help of the International Stuttering Association Outreach Working Group.

So, according to the model suggested in this book, the genetic factor is decisive in the onset and development of stuttering; and different populations of the world have different genetic inclinations towards stuttering.

It also seems that the correlation between the relaxed child-rearing practices and the lower incidence of stuttering established by Wendell Johnson exists, but the cause and the result of this correlation must be reversed. According to diagenetic theory, in low prevalence societies children do not stutter because parents do not pay attention to their articulation difficulties. I suggest that parents do not pay attention to the articulation problems of their children because in these societies there is very little genetic predisposition towards stuttering and there are almost no adult stutterers in their respective society.

Although I do believe that the influence of cultural factors in stuttering prevalence is important, it should not be responsible for the huge differences that exist in the prevalence of East Asian and American Indian populations on one hand, and sub-Saharan African populations on the other hand. I suggest that the impressive differences in stuttering prevalence are under genetic control.

Interestingly, there was no shortage of different explanations for the possibly reduced number of stutterers among the Chinese. These explanations were expressed by a very wide range of people, from the world's leading speech pathologists (like Mark Onslow from Australia and Viktor Shklovsky from Russia) to ordinary people with a knowledge of Chinese culture. The most popular explanation is that the Chinese do not stutter because both Mandarin and Cantonese (two main languages in China) are tone languages, so (1) when they speak they are 'singing' all the time, and as we know, (2) stutterers do not stutter when they sing. This explanation obviously does not work as West Africans also speak tone languages, but have arguably the highest stuttering prevalence in the world.

The monosyllabic and syllabic-timed character of the Mandarin and Cantonese languages was also suggested as the possible reason for the reduced prevalence (Onslow), although this cannot explain the reduced prevalence among Native Americans or the Central Asian Kazakhs (preliminary information from Prof. Shklovsky). Even infanticide was suggested, however stuttering is not something you would notice when a baby is just born.

There are some well-researched publications about stuttering in Japan, and the first World Stuttering Congress was also held in Japan. It would be interesting to know if the Ainu (carriers of polyphonic singing traditions) somehow have a higher

Joseph Jordania (2011). "Polyphony, Monophony and Stuttering". In: *Why do People Sing? Music in Human Evolution*. The publishing program Logos.

stuttering prevalence in Japan, and to investigate whether the potentially higher prevalence in Japan is due to the Ainu substratum among the Japanese.

It is still too early to draw the final conclusions. The cross-cultural prevalence of stuttering is not researched sufficiently. Although some regions of the world are researched quite well, information from other regions is very limited, and there is even no information whatsoever from a few regions. Here is summary of the currently available information on the cross-cultural prevalence of stuttering:

- European and North American populations of European descent have about a roughly 0.8%-1% prevalence.

- African American, sub-Saharan African and West Indies populations (with the major part of the population of African descent) show a higher prevalence (reaching up to 4%, 5% and even 9.2% in some populations).

- At least some populations of North American Indians have a significantly reduced number of stuttering individuals.

- According to preliminary evaluation, Native Australians also have a much reduced number of stuttering individuals.

- The same can be true for some North Asian and Central Asian populations, although the available information can only be treated as preliminary.

- The same can be said about the largest population of our planet – the Chinese. According to preliminary research, the number of stuttering individuals is significantly lower, although more detailed study is needed for more decisive results.

Therefore, the differences in stuttering prevalence between different populations on our planet can turn out to be very significant. For example, the prevalence difference between some populations of West Africa and some populations of Native Americans can be more than 100 times larger. In this context, using the European prevalence (1%) in order to characterize the stuttering prevalence of all the populations of the world is hardly a reasonable policy. The shadow of the Europe-centric 'milk drinking syndrome' is again over us.

I am well aware of the possible reaction of most professional speech pathologists to my declarations. Fortunately for all of us, my claim is very easy to disprove – even a simple unbiased prevalence survey conducted in a few schools with Chinese children could easily eliminate the biggest of my arguments.

But such a survey can provide the proof as well.