Extensions of weak continuous selections

Given (X, τ) and $m \in \omega$, an m-continuous selection $f : [X]^{\leq m} \longrightarrow X$ is a choice function which is continuous with respect to the Vietoris topology.

The study of continuous selections began with Ernest Michael in a paper published in 1951. In 1981, J. v. Mill and E. Wattel proved that for compact spaces (X, τ), it is equivalent the existence of a 2-continuous selection on X and the existence of a total order on X which is compatible with τ. In 2009, M. Hrusak and I. Martínez Ruiz constructed a Ψ-space which admits a 2-continuous selection but it's not weakly orderable. They asked if every space which admits a 2-continuous, admits a 3-continuous selection, question that was independently asked by V. Gutev. A more general question was then stated.

Question 1. *If a space (X, τ) admits a m-continous selection, is it true that X admits a m+1-continuous selection?*

In this talk we give a partial answer to that question, showing a relation between prime numbers and the existence of n-continuous selections.