

Background

In Wisconsin, approximately 800,000 private wells supply drinking water to roughly one quarter of the population¹, yet unlike municipal systems, private wells are not routinely monitored. Although annual testing is recommended, only about 10% of Wisconsin private wells are tested at the recommended frequency², despite evidence that 15–25% contain bacterial contamination and approximately 9% exceed acceptable nitrate levels³. Contaminated well water can cause gastrointestinal illness, and elevated nitrates pose serious risks to pregnant individuals and infants, particularly in agricultural regions⁴ such as Central Wisconsin, where fertilizer and manure runoff are common.

Fishing is also a culturally and economically important activity in Wisconsin but locally caught fish may contain mercury⁵ and other persistent contaminants⁶ that can negatively affect human development. While the Wisconsin DNR issues fish consumption advisories, awareness of these recommendations among Central Wisconsin residents is not well characterized.



Purpose & Methods

The purpose of this study was to assess awareness, behaviors, perceived barriers, and communication preferences related to well-water testing and fish consumption advisories among Central Wisconsin residents. This survey represents the initial phase of a community-engaged, multi-step project intended to inform more effective and equitable communication strategies and guide development of targeted educational materials, with the long-term goal of improving environmental health awareness and reducing preventable health risks.

We conducted a cross-sectional, community-based survey of Central Wisconsin residents. The survey was developed using Qualtrics online survey platform and distributed through in-person outreach at community health fairs, vaccination clinics, the Wausau Free Clinic, and community events. Surveys were administered by the study investigators and trained community health workers. To reduce participation barriers, the survey was available in English and Spanish and could be accessed via QR code for completion on participants' personal mobile devices.



Figure 1. Custom artwork with links to more information about well water safety, fish consumption advisories, and the Wisconsin WellTAP program. This artwork was applied to canned water and given out to community members as an incentive for survey completion.

Results

132 Central Wisconsin residents completed the survey. The sample was predominantly female (61%), White (64%), and English-speaking (74%), though a substantial minority identified as Hispanic/Latino (27%) and Spanish-speaking (21%).

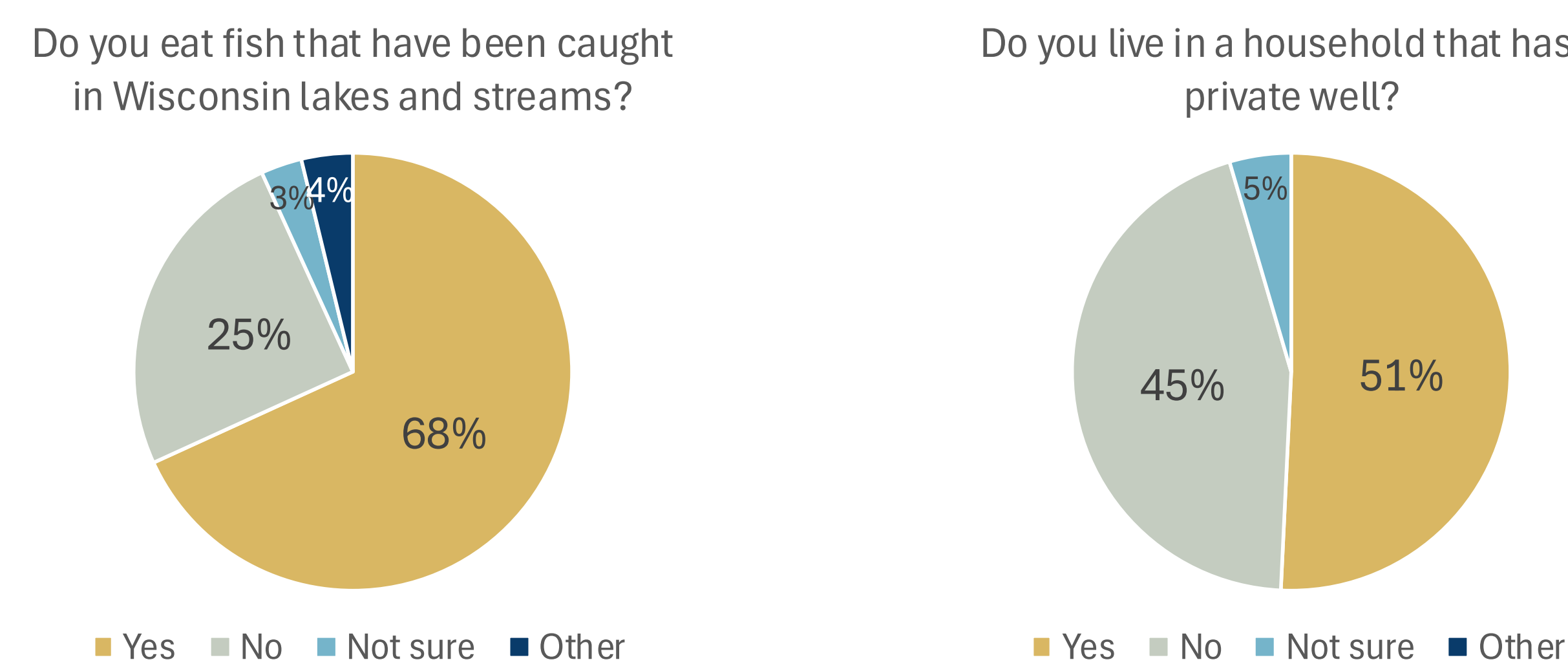


Figure 2. Reported fish consumption and private well usage by survey respondents

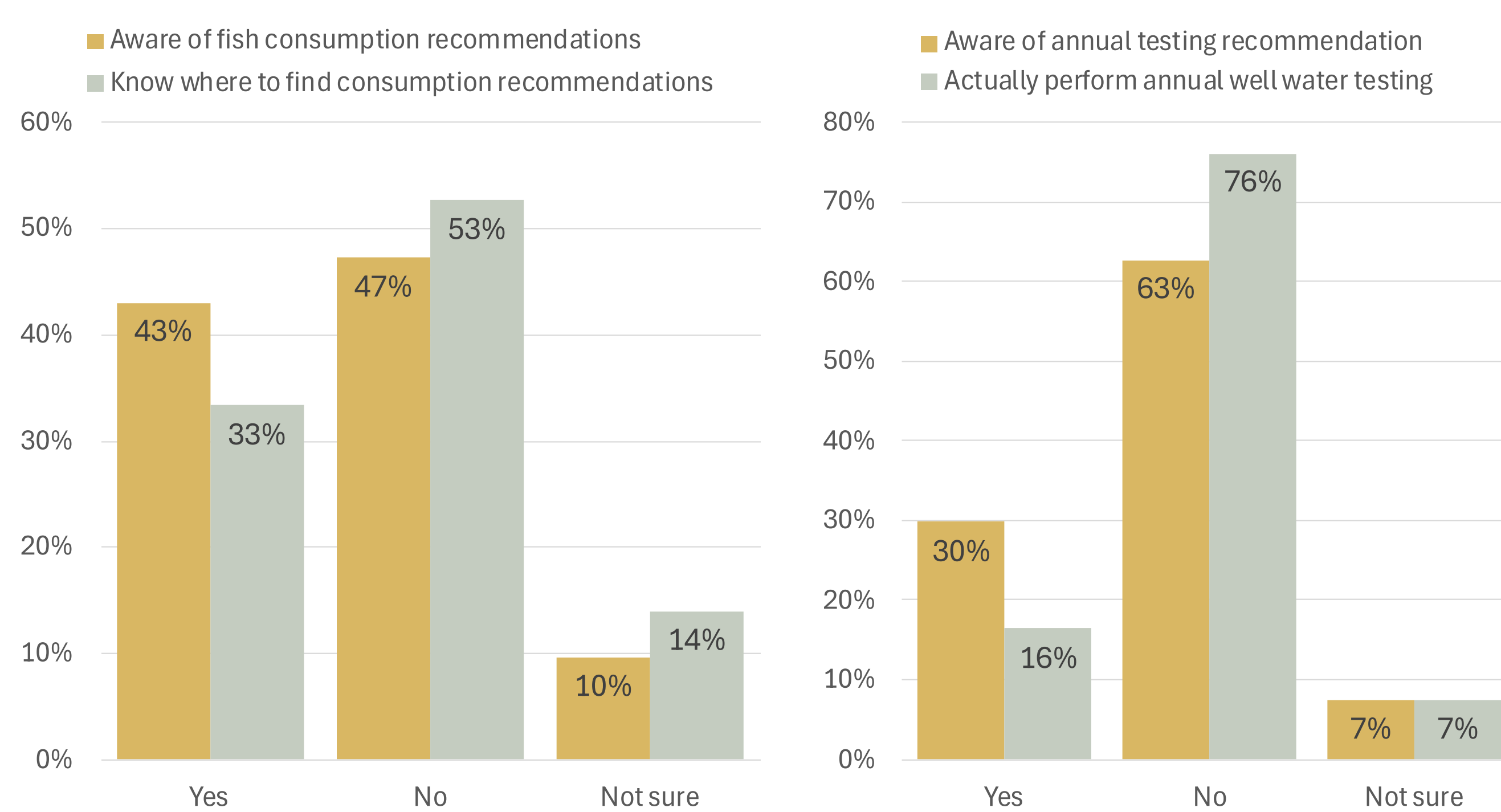


Figure 3. Awareness of fish consumption advisories

Figure 4. Awareness of annual well water testing recommendations

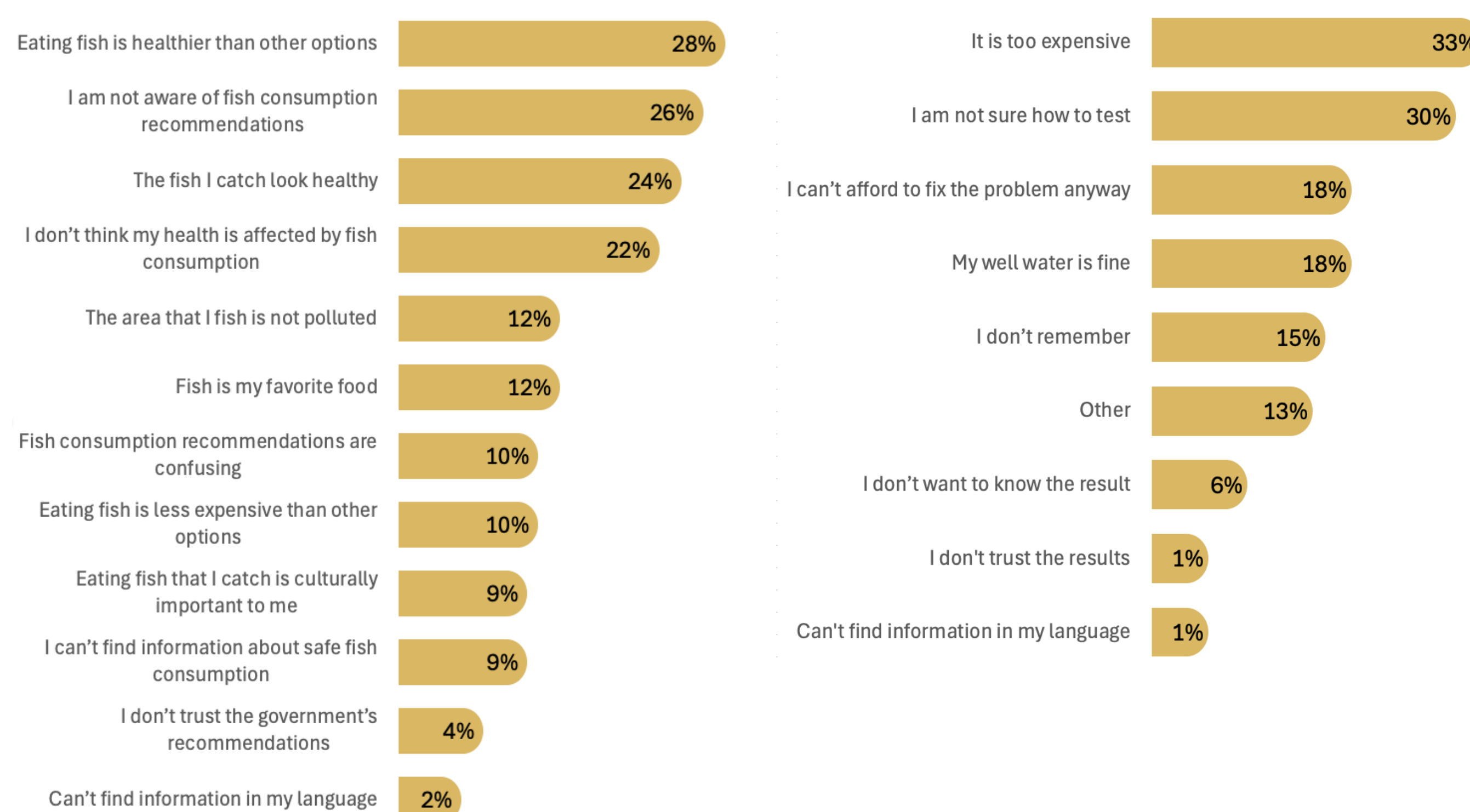


Figure 5. Reasons for not following fish consumption recommendations

Figure 6. Reasons for not testing well water at recommended frequency

Results

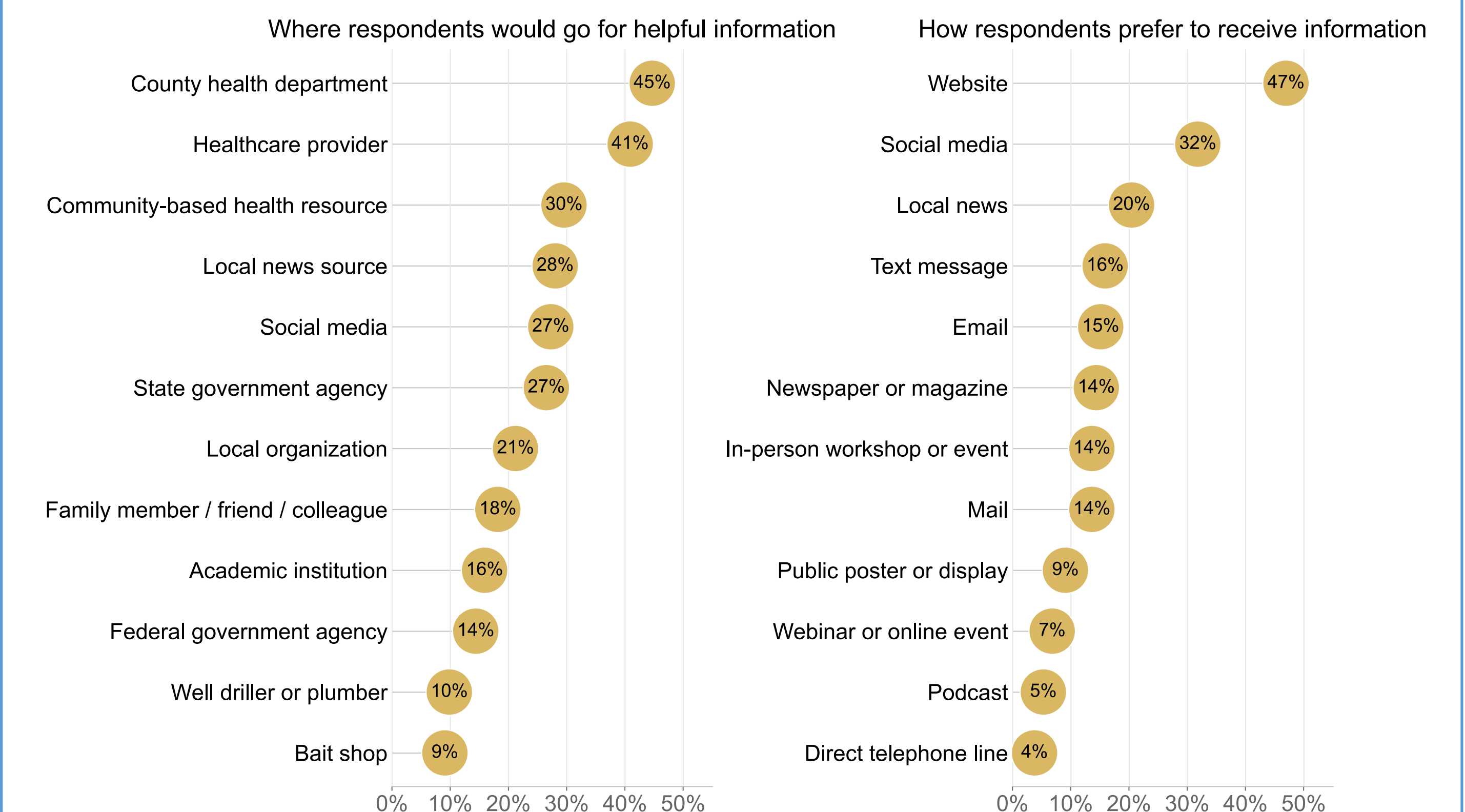


Figure 7. Sources respondents indicated they would use for information about well-water safety and fish consumption advisories and preferred methods for receiving this information.

Conclusions & Future Directions

Our survey of Central Wisconsin residents identified substantial gaps between recommended practices and real-world behaviors related to private well-water testing and fish consumption safety. Cost, logistical barriers, low perceived risk, and unclear or inaccessible information—rather than institutional distrust—were the primary obstacles to action. Respondents indicated that they trusted county health departments and healthcare providers the most and preferred accessible, digital, and proactive communication, highlighting an opportunity for more targeted outreach to reduce preventable health risks associated with well water and fish consumption.

These survey findings may now be used to inform the development of clear, culturally and linguistically appropriate educational materials about well-water testing and fish consumption safety. Communication of these materials should be guided through trusted sources such as local health departments and healthcare providers. Future efforts may include offering free well-water testing in Central Wisconsin to familiarize well owners with the process and remove the financial barrier to testing. Combining education with actionable services represents a promising community outreach strategy that could be adapted to other public health initiatives aimed at reducing preventable environmental health risks.

Acknowledgements & References

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