
SOCIAL SCIENCE ASPECTS OF FLUORIDATION*

A Supplement

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SOCIAL science research on the fluoridation topic is not inconsiderable. Over 40 articles and monographs were included in a review published in the Summer and Fall of 1961 including both published and unpublished material (4, 5). Since that time, there have been another half dozen monographs which build on this earlier material and, as we shall see, make major additions of their own. In fact, it may be reasonably claimed that the importance of this new material outweighs the combined effects of the more numerous early studies.

There is, then, little doubt that this supplement is needed if we are to accurately assess the current state of social science knowledge on fluoridation. It should be emphasised that this paper *is* a supplement and not a full fledged review; I will confine myself to work not covered in the 1961 review.

The Alienation Hypothesis

Early students of the fluoridation issue focused on the attitude question: Why do individuals favour or oppose fluoridation? A diversity of motives on both sides was acknowledged: "No" voters range from the neutral, indifferent voter who perceives no consensus among experts to the convinced and fanatical opponent who, like General Jack D. Ripper in *Dr. Strangelove*, fears some threat to his "vital fluids". "Yes" voters may also range from the health professional who has read a wide variety of studies of fluoridation to the naive citizen who confuses fluoridation with a water purification process.

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But within this diversity, there has been a recurrent social psychological theme which has focused on the status deprivation, the lack of attachments, and powerlessness of many who oppose fluoridation. The main support for this "alienation hypothesis" has come from studies showing that in a cross section sample of voters, those who vote for fluoridation are less "alienated" than those who vote against.

Such an explanation of fluoridation decisions, even if it becomes more solidly verified than at present, can only be a partial one. Major questions are left unanswered. Only a minority of fluoridation decisions are made by the voters. How does the decision-making process and the formal political structure of the community affect the outcome? Or, even assuming that a referendum will be held, why do those with feelings of helplessness become mobilised as fluoridation opponents? In short, a more complete answer must take us from the understanding of social psychological mechanisms which are operating on individuals to the social and political process of which fluoridation is a part. It is this latter emphasis which the newer research on fluoridation provides.

The Mobilisation of the "Powerless"

Gamson (3) and Green (6), in attempting to answer why many fluoridation campaigns arouse those with feelings of helplessness, have both turned their attention from the opponents of fluoridation to the proponents. Gamson (3) suggests that it may be something in the "campaign posture" of fluoridation proponents which mobilises the opposition. "Many people in many communities" he writes, "are likely to have feelings of political helplessness. This is insufficient in itself to turn someone against fluoridation. The fact that differences between voting proponents and opponents exist in this regard seems to indicate that there is something about fluoridation which makes these feelings salient . . . It may be the campaign posture which partisans take . . . Most of us are annoyed and righteous when someone who is unqualified challenges our opinion on a subject on which we feel to some degree expert. This kind of legitimate 'arrogance' is more refreshing than false humility. But legitimate or not, it is a poor posture to take on fluoridation on any other issue which will eventually be decided by public vote."

Green (6) is even more direct in holding the proponents of fluoridation responsible for the debacle of the unsuccessful fluoridation

referendum. Green attacks the notion of an "educational" campaign. "It is obvious that virtually no one in the community is capable of assessing for himself the disputed claims over the safety and reliability of fluoridation. Each side pours forth a stream of experts, statistics, and studies that flatly contradict one another. Who, then, is to be believed? . . . It is this fundamental element of trust that makes the emphasis on education thoroughly inappropriate. In a fluoridation campaign, the public is not, in any reasonable sense of the word, being 'educated' by either side . . . The public is, rather, being persuaded . . . [Each side] aims at inducing the public to trust . . . one or the other array of experts and authorities."

Green goes on to argue that "authoritarian elements in the pro-fluoridationists' stance toward the public" help to provoke the opponents to their excesses. "The violent rhetoric of the anti-fluoridationists, and the dubious tactics they often employ, are partially provoked by the peremptory denial that they are entitled to express any criticism at all." Of course, the proponents may in turn have been provoked by earlier acts of the opponents but Green's point is not an intended resolution of this chicken and egg question. Rather, he and Gamson both point to the *mutually reinforcing* pattern of ad hominem charge and counter charge.

Structural Effects on Fluoridation Outcome:

Social Attachments

A different but complementary explanation of fluoridation outcome is suggested by Pinard (7). Where Gamson and Green focus on the process of fluoridation decision-making, Pinard is interested in how the integration of individuals into the community through structural attachments affects the outcome of fluoridation. His argument, like Green's and Gamson's, is an outgrowth of the alienation hypothesis but on the community rather than the individual level of analysis. Using 262 cities that have had referenda on fluoridation, Pinard argues that in communities which are closely knit and highly integrated, leaders will be more likely to take a clear and strong stand in favour of fluoridation and will be more likely to be followed. Unfortunately, his measures of "attachment" are highly indirect and crude. They consist of such variables as size of turnout, size of community, unemployment, and growth rates. He does find some modest correlation between variables which he interprets as representing stronger attachments and the success of fluoridation referenda. But caution in interpretation is

necessary here since the large gap between the theoretical variable of "attachments" and the operational measures allows a variety of alternative explanations of the results. For example, the greater degree of success in towns under 10,000 may simply be due to the relative absence of sophisticated and skilled opponents rather than to greater "integration".

Structural Effects on Fluoridation Outcome:

The Political Structure

Until quite recently, the "alienation hypothesis" by default carried the day on systematic explanations of the questions raised by the fluoridation issue. This situation has been changed by a study (1, 2, 8) coming out of the University of Chicago authored by Robert Crain and Elihu Katz, sociologists, and Donald Rosenthal, a political scientist. Their research represents the most important existing work on the social science aspects of fluoridation and in many ways, it constitutes a major challenge to the "alienation hypothesis".

The basis of this study was a mailed questionnaire to three informants—the local health officer, the publisher of the leading newspaper, and the city clerk—from all United States cities over 10,000 which were potential or actual adopters of fluoridation. Note that these cities, unlike previous studies, were not selected because of any action on fluoridation. Some had never considered fluoridation; some had considered and adopted it by either administrative action or referendum, some had considered and rejected it. At least partial information was obtained on more than 700 cities (from an original sample of 1,171) and this plus the nature of the sample made possible a number of interesting and critical sorts of comparisons not previously possible.

It is difficult to do justice in a short review to the wealth of insights and specific findings generated by these studies. I will, however, make an effort to present the general conclusions and arguments of Crain and Rosenthal, (2) and Rosenthal (8) in this section, reserving a discussion of Crain (1) for the final section.

Crain and Rosenthal summarise their specific findings before attempting to interpret and integrate them and I can do no better than simply quoting them at length:

The following 17 statements seem the most important conclusions of the analysis, answering the given questions . . .

What have cities done about Fluoridation?

1. Fluoridation has been discussed in an overwhelming majority of cities with a population over 10,000.

2. Less than one-third of the cities of this size have actually accepted fluoridation, however; and about one-fifth of them have submitted fluoridation to referenda, where it has been defeated three-fourths of the time.

What is the Typical Campaign like?

3. Fluoridation is usually suggested by a dentist, with the active backing of the "health sector" organisations and supplementary support from some of the other organisations of the community.

4. The opposition tends to be led by persons of relatively low status with very little support from civic groups.

5. The mayor rarely opposes fluoridation but he remains neutral about one-half the time.

6. Compared to other local issues, the discussion of fluoridation is often heated. If a referendum is held, the vote on fluoridation frequently exceeds that cast on other parts of the ballot.

7. The more controversial fluoridation is, the less likely it is to be endorsed by the mayor.

How do successful and unsuccessful campaigns differ?

8. Higher status proponents and opponents are more effective than leaders of lower status in achieving their respective goals.

9. Politically active opponents and proponents are more effective than politically inexperienced leaders.

10. The support of the health organisations appears to be helpful to the cause of fluoridation.

11. The mayor is very effective; by remaining neutral, he prevents adoption, and when he endorses fluoridation he is usually successful.

12. The more fluoridation is discussed, the more likely it will be rejected. Considerable activity, heated or extensive controversy, and a large turnout on the referendum are all associated with the defeat of fluoridation.

How do adopting and rejecting cities differ?

13. Fluoridation is more likely to be adopted where there exists a strong-executive form of government.

14. Professional managers and partisan mayors identified with one of the national parties are more likely to support fluoridation.

15. Middle-class communities are more likely to hold referenda.

16. Non-partisan cities are more likely to hold referenda.

17. High-unemployment communities are more likely to defeat a referendum.

Unlike Green and Gamson who have suggested that strong efforts to avoid a referendum contribute to the arousal and mobilisation of opponents, the authors here suggest that "to the extent that the proponents have a choice between a "mass" or an "elitist" campaign, they should choose the latter." They conclude this particularly from the importance of the mayor and city manager for adoption, the relation of high controversy to defeat, and the difficulties of winning a referendum even under the best of conditions. The correlation of mayor's public position with the fluoridation decision is very high whether the decision is made administratively or by public vote. Fluoridation is adopted in three-fifths of the decisions made when the mayor is favourable but if he opposes it or is neutral, fluoridation is adopted in fewer than a tenth of the decisions.

The authors confront the alienation hypothesis even more directly. They grant that studies have shown that "the voter who opposes fluoridation tends to be older, to have a lower social status, and to score high on measures of anomia and political inefficacy." But, they argue, the "theory does not correctly predict the type of community which will have conflict . . . Alienation theory *seems to* predict that the most intense controversies will take place (1) in larger communities, where the bonds of social relations are weaker, (2) communities with a great disparity between social status of the elites and the majority of the population, (3) when less of the population is involved in civic affairs, and (4) when the government is more authoritarian. In terms of *the number of referenda won and lost* the hypotheses are generally correct, with the exception of (4). But all four of the predictions are wrong as to the *likelihood of holding a referendum*." Furthermore, they argue, the alienation theory "seems contradicted by the

fact that the 'revolt' is less likely to occur when the mayor supports fluoridation. The more clearly the proposal is identified with the [local] elites . . . the more likely fluoridation is to be adopted."

Rosenthal's (8) analysis follows a similar vein but puts even more stress on the formal governmental structure. "Strong executive government," he concludes, "appears to help fluoridation . . . There is a tendency for cities with strong leadership capabilities (partisan mayor-councils and managers) to push fluoridation more successfully than systems in which leadership is fragmented formally (commission cities) or weakened by decentralising authority (non-partisan mayor-council cities). Partisan structures contribute to the ability of systems to adopt administratively . . . Governments which do not place 'obstacles' such as parties between the citizen and the decision-makers experience the pattern of a large number of referenda and high controversy [as well as high rejection]."

Both Crain and Rosenthal (2) and Rosenthal (8) raise serious questions about the alienation hypothesis by pointing to the importance of the mayor's stand and the type of political structure as important determinants of fluoridation outcome. Is some synthesis of these two views possible? I believe it is and will make an attempt at such a synthesis in the last part of this paper following a discussion of the third volume of the Chicago study.

The Diffusion Process

Those involved in fluoridation controversies have long known that the results of a decision in one community will be closely examined by those in neighbouring cities. Crain's study (1) of action on fluoridation as a part of a diffusion process is the first and only attempt to study systematically inter-community effects. While the apparent effect of one community's action on another's is small, some of the findings, and particularly those regarding referenda, are interesting. "A city which defeats fluoridation by referendum discourages its neighbours from adopting while a city which adopts fluoridation without holding a referendum encourages its neighbours to adopt. *Yet a city which adopts after winning a fluoridation referendum also discourages its neighbours from adopting.*" Furthermore, "cities which hold referenda seem to constrain their neighbours to hold them also."

Conclusion

Crain's (1) results are a reminder that all the variance in outcome

on fluoridation is not explained by the community structure and decision-making process. But this study does not, of course, answer many of our questions about why fluoridation passes or does not pass. For such questions, we are left with two general explanations which are apparently contradictory at some points.

On the one hand, we have the alienation hypotheses—the defeat of fluoridation stems from a revolt of the powerless. On the other hand, we have the political structural effects—clear stands by the mayor and city manager in strong-executive forms of government lead to adoption. One particular point of confrontation concerns the relative lack of success in middle class, highly educated, “participative communities”. Fluoridation fares poorly despite the fact that there should be fewer who feel powerless in such towns.

By some restatement and refinement of the alienation hypothesis it seems possible to reconcile it with the major findings on political structure. The essential modification involves the acknowledgement that the existence of larger or smaller groups in a community who feel powerless does *not* determine the *manner* of decision-making. This is determined by the political structure and past traditions of the handling of decisions. However, if the decision *is* made by referendum, then the circle of mutually stimulating charge and counter charge is likely to be set off leading to a mobilisation of the “alienated”.

In such referenda campaigns, the actions of local public officials are double edged. On the one hand, any equivocation by such critical officials as the mayor, city manager, or health officer will probably be fatal to the adoption of fluoridation. Those many individuals who are little engaged in the controversy will simply have their doubts increased. On the other hand, a contemptuous and arrogant posture by these officials or by private citizens acting as pro-fluoridation partisans may mobilise a potential opposition and create a sympathy vote for those who complain that “fluoridation is being shoved down our throats”. In short, in this restatement of the alienation hypothesis, it is not predicted that fluoridation will inevitably involve this social psychological mechanism—it will only do so when the political structure and decision-making process creates the appropriate conditions.

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"THE TIME BETWEEN"—Preparing for Nursing or Midwifery Training by the Ministry of Health.

This booklet recently published by the Ministry of Health is directed towards helping young people about to leave school and who wish to obtain information about specific careers.

The booklet covers the gap between leaving school and beginning training for a chosen career. This gap has been a problem for many young people, and has possibly been an indirect cause of girls not entering the nursing profession. Once they have become established in a job where they are happy, and which is financially attractive even though not completely satisfying, they have no desire to change and start afresh.

The aim of the booklet is to offer constructive suggestions on the openings now available for young people in the wide field of nursing, and show that all of these help to lay the foundations towards a nursing career.

The booklet should have great appeal. The cover is modern and in colour with a glossy texture and the contents are well illustrated.

Questions on this subject which might arise are answered in detail. Also addresses in different areas are given, where further information might be obtained.

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"NURSING AND MIDWIFERY" by the Ministry of Health.

This excellent small booklet which has recently been published by the Ministry of Health covers all aspects of training for nursing and midwifery.

It serves a need by answering all the questions relating to the two professions. Addresses are also included where further information might be obtained in different areas of the country.