

Analysis of Drug Awareness Communication through the Radio Analytic Mean Labelling Using Oxide and Silicate Network Graphs

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Received: 12th Mar, 2026 | Revised: 24th Mar, 2026 | Accepted: 14th Apr, 2026 | Available Online: 30th Apr, 2026

ABSTRACT

Drug awareness programmes through radio and television channels play a crucial role in educating the public about the dangers of substance abuse. These media platforms have a wide reach and can effectively deliver important messages to diverse audiences, including youth and vulnerable communities. Through talk shows, interviews with experts, real-life stories, advertisements, and public service announcements, they highlight the physical, mental, and social consequences of drug use. Radio programs can engage listeners with discussions and helplines, while television channels use visual storytelling to create a stronger emotional impact. Such initiatives not only spread awareness but also encourage prevention, early intervention, and support for those struggling with addiction, ultimately contributing to a healthier society. A radio analytic mean labeling of a graph $G=(V,E)$ is a function $f: V(G) \rightarrow \{1,2,3,\dots\}$ such that $d(u,v) + \frac{|\theta(u)^2 - \theta(v)^2|}{2} \geq 1 + \text{diam}$, where $d(u,v)$ is shortest distance between two vertices G .

Keywords: Analytic mean, Radius, Oxide network, Silicate network graphs.

How to cite this article: Malliga P, Helan Sinthiya V, Poomalai P, Sethilkumar P. Analysis of Drug Awareness Communication through the Radio Analytic Mean Labelling Using Oxide and Silicate Network Graphs. *Int J Drug Deliv Technol.* 2026;16(42s): 25-31. DOI: 10.25258/ijddt.16.42s.4

Source of support: Nil.

Conflict of interest: None

Introduction:

In a graph theory model of drug awareness broadcasting, each city can be considered a vertex, and the communication links between them such as radio and television networks can be represented as edges. When drug awareness news is transmitted through these channels, it spreads from one vertex to another along the edges, similar to information flow in a network. Highly connected cities act as hubs, enabling faster and wider dissemination of awareness messages, while less connected cities may receive information more slowly. By analyzing this graph structure, authorities can identify key vertices for initiating broadcasts, optimize transmission paths, and ensure that drug awareness

campaigns reach all regions efficiently, minimizing gaps in communication and maximizing public impact.

The graph can be either directed or undirected, depending on whether the information flow is one-way (from a major broadcasting city to smaller cities) or two-way (interactive communication between cities). Edge weights can represent the strength or effectiveness of communication, such as signal quality, audience reach, or frequency of broadcasts. Cities with higher degree centrality (more connections) play a vital role in spreading drug awareness quickly to multiple regions. Shortest path algorithms can help identify the quickest routes for information to reach remote or less-connected

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cities

. The concept of network diffusion explains how awareness messages gradually spread across the graph over time. Clustering of cities may indicate regions where awareness spreads internally faster but may require stronger links to other clusters. Using a spanning tree, authorities can design a cost-effective broadcasting network that still connects all cities. Graph connectivity ensures that no city is isolated, which is important so that every region receives awareness messages..

Today wireless communication network essential need to all countries. The wireless communication network has applied to radio channel, mobile TV, satellite, Aerospace, Coding theory etc. The channel assignment problem was first introduced by Hale in 1980. This problem is converted to graph theory model, every transmitter here consider vertex. The network consisting of number of stations our goal is allocated to every radio station and a channel (+ve interger) without interference. The interference is very short distance between two stations the interference the difference between two channels allocated to the station distance between must be large. This problem is converted as a graph when each station is consider a vertex these two vertices are connect when their corresponding stations are near. Chartrnd introduced radio labeling in some graph in 2001. Ponraj et.all introduced the radio mean labeling and radio number for path and cycle graphs in [2015]. Poomalai et. all investigate radio analytic mean number and radio analytic mean D-distance number for various graphs in 2019.

The radio analytic mean labeling in wireless communication network minimizing the interference and the labeling provides structured way to assign frequency even as the network grows ensuring consistent performance without excessive reconfiguration. The diameter of a network graph is the longest shortest path between any two nodes in the network. This is can increase the radio analytic mean number of hops required for data to travel from to node to another. The radius of the network is the minimum distance from a central node. This can lead to a lower mean number of hops for communication reducing latency and energy use.

Definitions 1: A Radio Analytic mean labeling of a connected graph G is a one to one map f from the vertex V(G) to set Z. Such that for any two not

same vertices of u and v. $d(u,v) + \lfloor \frac{|\theta(u)^2 - \theta(v)^2|}{2} \rfloor \geq 1 + \text{diam}$. Where d(u,v) distance between two vertices.

Definition 2: The diameter diam (G) of G is the greatest eccentricity among the vertices of G.

Definition 3: The Oxide network contains three oxygen atoms and we eliminate the silicon atom from the silicate network, then the resulting network is an oxide network. The oxide network has the triangular structure. It is denoted by (OX_n)

Definition 4: The Silicate are obtained by fusing metal oxide or metal Carbonates with sand. The silicates contain SiO₄ tetrahedron. The Corner vertices contains oxygen ions and the center vertex represents the silicon. The resulting network is called silicate network. It is denoted by (St_n)

Theorem 1: The Radio Analytic mean number of oxide network $5\eta^3 + 2\eta + 1, \eta \geq 2$

Proof:

The oxide network graph applied in drug awareness program using each vertex represents a city with in the target region while edges represent communication channles between those cities such as Social media interactions, transport links, NGO outreach. By mapping cities as vertices and communications flows as edges, we can model how drug information, Peer influence, or awareness Campaigns spread through the network. The oxide network of dimension η is denoted by OX_n. Its contains boundary of vertices of degree is 2. we separate nine path disjoint sets the oxide network contains 42 vertices and 72 edges. The diameter and radius of OX_n is 8 and 4.

$$P_1 \rightarrow V(X) = X_i^j \quad i=\eta-1, j=\eta, \eta-1$$

$$P_2 \rightarrow V(X_\eta^i), \eta=2, i=1, 2, \dots, 3\eta$$

$$P_3 \rightarrow V(X_{\eta+1}^j), i=1, j=1, 2, \dots, \eta+1$$

$$P_4 \rightarrow V(X_{2\eta}^k), k=1, 2, \dots, 4\eta, \eta=2$$

$$P_5 \rightarrow V(X_{2\eta+1}^l), l=1, 2, 3, \dots, 2\eta$$

$$P_6 \rightarrow V(X_{2\eta+2}^m), m=1, 2, \dots, 4\eta$$

$$P_7 \rightarrow V(X_{3\eta+1}^0), 0=1, 2, \dots, \eta+1$$

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$$P_8 \rightarrow V(X^p_{3\eta+2}), p=1, 2, \dots, 3\eta$$

$$P_9 \rightarrow V(X^q_{4\eta+1}), q=1, q=2$$

$$\text{Let } V(x) = \eta-1, V(y) = 2\eta$$

$$V(X^i_\eta) = 5-\eta+2i, i=1, 2, \dots, 3\eta, \eta=2$$

$$V(X^j_{\eta+1}) = 8\eta+2i-1, j=1, 2, \dots, \eta+1, i=1, 2, 3$$

$$V(X^k_{2\eta}) = 5\eta^2 + \eta+2i-1, k=1, 2, \dots, 4\eta, i=1, 2, \dots, 4\eta$$

$$V(X^l_{2\eta+1}) = 4\eta^3 + 3\eta+2i-1, l=1, 2, \dots, 2\eta, i=1, 2, \dots, 2\eta$$

$$V(X^m_{2\eta+2}) = 11\eta+2i, i=1, 2, \dots, 4\eta, m=1, 2, \dots, 4\eta$$

$$V(X^o_{3\eta+2}) = 2\eta^3 + 2i, i=1, 2, \dots, \eta+1, o=1, 2, \dots, \eta+1$$

$$V(X^p_{3\eta+2}) = 2\eta+2i, i=1, 2, \dots, 3\eta, p=1, 2, \dots, 3\eta$$

$$V(X^q_{4\eta+1}) = \eta, \text{ if } q=1$$

$$V(X^q_{4\eta+1}) = 8\eta^2 + 2\eta+4 \text{ if } q=2$$

We consider any two vertices u and v belongs to any path set P_1 to P_7 .

Case (i) If $u \in P_1$ and $v \in P_2$ then $u = x^a, v = x^d$ Where $a \leq 1, b \leq 1, c=1 \leq \eta, d = \eta+1$

Here $\theta(u) = \eta-1, \theta(v) = 5-\eta+2i$ and $d(u,v) = \eta-1$

$$d(u,v) + \left\lceil \frac{\theta(u)^2 - \theta(v)^2}{2} \right\rceil \geq I+4\eta$$

$$1 + \left\lceil \frac{(\eta-1)^2 - (5-\eta+2i)^2}{2} \right\rceil \geq I+4\eta$$

Case (ii): Consider $u \in P_2$ and $v \in P_3$ then $\theta(u) = x^b = 5-\eta+2i$ where $1 \leq i \leq \eta$, $\theta(v) = x^d = 8\eta+2i-1$, where $1 \leq i \leq \eta+1$. Here $a = 2, c=3, 1 \leq d \leq \eta, d(u,v) = 1$

$$\Rightarrow 1 + \left\lceil \frac{(5-\eta+2i)^2 - (8\eta+2i-1)^2}{2} \right\rceil \geq I+4\eta$$

Case (iii): If $u \in P_3$ and $v \in P_4$ then $\theta(u) = x^b, 1 \leq a \leq \eta+1, \theta(v) = x^d, 1 \leq c \leq 2\eta$

$\theta(u) = 8\eta+2i-1, i=3, \theta(v) = 5\eta^2 + \eta+2i-1, i=4, d(u,v) = \eta+1$

$$\Rightarrow \eta+1 + \left\lceil \frac{(8\eta+2i-1)^2 - (5\eta^2 + \eta+2i-1)^2}{2} \right\rceil \geq I+4\eta$$

Case (iv): Suppose $u \in P_4$ and $v \in P_5$, then take the $\theta(u) = x^b$, here $a = 4, 1 \leq b \leq 4\eta$

$\theta(v) = x^c, c=5, \theta(u) = 5\eta^2 + \eta+2i-1, \theta(v) = 4\eta^3 + 3\eta+2i-1, d(u,v) = 1$

$$\Rightarrow 1 + \left\lceil \frac{(5\eta^2 + \eta+2i-1)^2 - (4\eta^3 + 3\eta+2i-1)^2}{2} \right\rceil \geq I+4\eta$$

Case (v): Suppose $u \in P_5$ and $v \in P_6$, then take the $u = x^b, a$, here $a = 5, b = 1 \leq i \leq 4\eta$

$\theta(v) = x^c, c=5, \theta(u) = 5\eta^2 + \eta+2i-1, \theta(u) = 5\eta^2 + \eta+2i-1 = 4\eta^3 + 3\eta+2i-1, d(u,v) = 1$

$$\Rightarrow 1 + \left\lceil \frac{(5\eta^2 + \eta+2i-1)^2 - (4\eta^3 + 3\eta+2i-1)^2}{2} \right\rceil \geq I+4\eta$$

Case (vi) If: $u \in P_6$ and $v \in P_7$, then take the $u = x^b, a$, here $a = 6, 1 \leq b \leq 4\eta$

$v = x^c, c=7, 1 \leq d \leq \eta+1, d(u,v) = 2$

$\theta(u) = 11\eta+2i, \theta(v) = 2\eta^3 + 2i$

$$\Rightarrow 2 + \left\lceil \frac{\theta(u)^2 - \theta(v)^2}{2} \right\rceil \geq I+4\eta$$

$$\Rightarrow 2 + \left\lceil \frac{(11\eta+2i)^2 - (2\eta^3 + 2i)^2}{2} \right\rceil \geq I+4\eta$$

Case (vii) If: $u \in P_7$ and $v \in P_8$, then take the

$u = x^b, a$, here $a = 7, 1 \leq i \leq \eta+1, v = u = x^d, a, c=8, 1 \leq d \leq 3\eta, \theta(u) = 2\eta^3 + 2i, \theta(v) = 2\eta+2i, d(u,v) = 1$

$$\Rightarrow I + \left\lceil \frac{(2\eta^3 + 2i)^2 - (2\eta+2i)^2}{2} \right\rceil \geq I+4\eta$$

Case (viii) Assume $u \in P_8$ and $v \in P_9$, then $u = x^b, a, a = 8, 1 \leq b \leq 3\eta, v = x^c, c=9, 1 \leq d \leq \eta$

$\theta(u) = 2\eta+2i, \theta(v) = \eta, d(u,v) = 1$

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$$\Rightarrow d(u, v) + \left\lfloor \frac{|\theta(u)^2 - \theta(v)^2|}{2} \right\rfloor \geq l + 4 \eta$$

$$\Rightarrow l + \left\lfloor \frac{|(2\eta^3 + 2i)^2 - (\eta)^2|}{2} \right\rfloor \geq l + 4 \eta$$

Here all the pairs of vertices satisfied RAMC.

Case(ix) If $u \in P_8$ and $v \in P_9$, then $u = x^b_a$, $a = 9, b = 1, v = x^b_c$, $b = 1, c = 9, d = 2, \theta(u) = 2\eta + 2i, \theta(v) = 8\eta^2 + 4\eta$, then the check the condition in the same as case(viii).

Case(x): Consider if $u \in P_6$ and $v \in P_6$ in the same path line then $u = x^b_a$, $a = 6, 1 \leq b \leq 4 \eta$

$$u = x^d_c, C = 6, 1 \leq b \leq 4 \eta, V = x^d_c, C = 6, 1 \leq d \leq \eta$$

$$\theta(u) = 11\eta + 2i, \theta(v) = 11\eta + 2j, d(u, v) = 7, d(u, v) = c$$

$$\Rightarrow d(u, v) + \left\lfloor \frac{|\theta(u)^2 - \theta(v)^2|}{2} \right\rfloor \geq l + 4 \eta$$

$$\Rightarrow l + \left\lfloor \frac{|(11\eta^3 + 2i)^2 - (11\eta + 2j)^2|}{2} \right\rfloor \geq l + 4 \eta, i = 1, j = 8$$

Case (xi): Assume $u \in P_2$ and $v \in P_7$, then $u = x^b_a$, $a = 2, b = 2\eta + 1, V = V = x^d_c, c = 7, d = \eta + 1$

$\theta(u) = 5 - \eta + 2i, \theta(v) = 2\eta^3 + 2, j = 3$. Here the distance between $d(u, v) = 5$.

$$\Rightarrow d(u, v) + \left\lfloor \frac{|\theta(u)^2 - \theta(v)^2|}{2} \right\rfloor \geq l + 4 \eta$$

$$\Rightarrow 5 + \left\lfloor \frac{|(5 - \eta + 2i)^2 - (2\eta^3 + 2j)^2|}{2} \right\rfloor \geq l + 4 \eta, i = 1, j = 8.$$

Therefore these two vertices satisfied ramc.

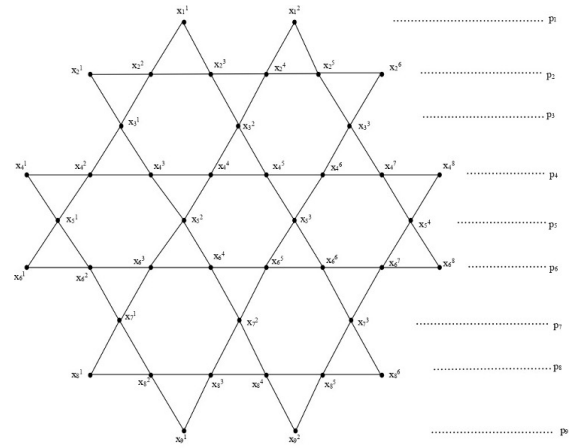
Case (xii): If $u, v \in P_4$ in the same path line vertex then $u = x^b_a$, $a = 5, 1 \leq b \leq 2 \eta$

$$V = x^d_c, c = 5, 1 \leq d \leq 2 \eta, \theta(u) = 5\eta^2 + \eta + 2i - 1, \theta(v) = 5\eta^2 + \eta + 2j - 1$$

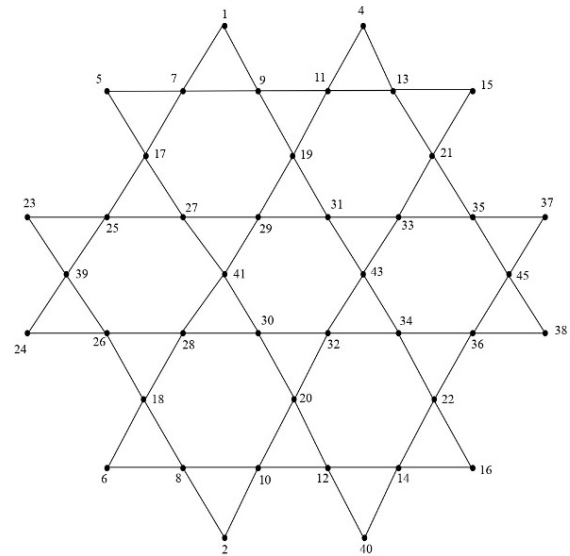
$$\text{Then the result is } d(u, v) + \left\lfloor \frac{|\theta(u)^2 - \theta(v)^2|}{2} \right\rfloor \geq l + 4 \eta$$

$$\Rightarrow \left\lfloor \frac{|(5\eta^2 + \eta + 2i - 1)^2 - (5\eta^2 + \eta + 2j - 1)^2|}{2} \right\rfloor \geq l + 4 \eta$$

Here all the pairs of vertices (cities) greater than diameter, The interference are reduced drug awareness Communication easily reach the people.



The oxide Network (Ox_a)



The oxide Network (Ox_c)

Theorem 2: The Radio Analytic mean number of Silicate network $k^3 + k - 3, k \geq 8$

Proof: In a drug awareness program modeled as a Silicate network individuals or Community groups are treated as vertices, while the communication pathways between them from edges that mimic the strong, interconnected bonds of a silicate lattice. Just a Silicon and Oxygen atoms create a Stable, resilient network, mapping peer groups. This Silicate structure helps identify fragile links where misinformation or drug influence might propagate, so interventions can reinforce those edges with targeted communication. The Silicate network partition into six disjoint sets. Its diameter $k \geq 8$ and radius $r = 4$,

Sl_n Has $k^2 + 2$ vertices and $25k + k - 4$ edges. The

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Silicate network each edge outside S_{l_1} and all silicates having metal carbonates with sand .First we give to the name of vertex set as follows:

The Silicate network S_{l_n} vertex set separate to five disjoint sets:

$$\alpha = u_i^j = \{i = 1, j = 1, 2 \quad i = 2, j = 1, 2 \dots 6 \quad i = 3, j = 1, 2, 3 \dots 8 \quad , \beta = v_i^j = \{i = 1, j = 1, 2 \dots 8 \quad i = 2, j = 1, 2 \dots 6 \quad , \gamma = w_i, i = 1, 2, \dots, 12$$

$$P = \rho_i^j = \{i = 1, 2, j = 1, 2 \quad i = 1, 2, j = 1, 2, 3 \quad i = 3, j = 1, 2, 3 \quad i = 4, j = 1, 2, 3, 4 \quad , \quad q = \gamma_i^j = \{i = 1, 2 : j = 1, 2, 3, 4 \quad i = 2 : j = 1, 2, 3 \quad i = 3, j = 1, 2, 3$$

Define the mapping of vertex set as follows:

$$\theta: V(S_{l_n}) \rightarrow \mathbb{N}^+$$

$$\theta(u_i^j) = k - 3 + 2j, \quad i = 2, 1 \leq j \leq k - 2$$

$$\theta(u_i^j) = 2k + 1 + 2j, \quad i = 3, 1 \leq j \leq k$$

$$\theta(v_i^j) = 4k + 1 + 2j, \quad i = 1, 1 \leq j \leq k$$

$$\theta(v_i^j) = 6k + 1 + 2j, \quad i = 2, 1 \leq j \leq k - 2$$

$$\theta(\rho_i^j) = \frac{k}{2} + 2i, \quad 1 \leq i \leq k + 4$$

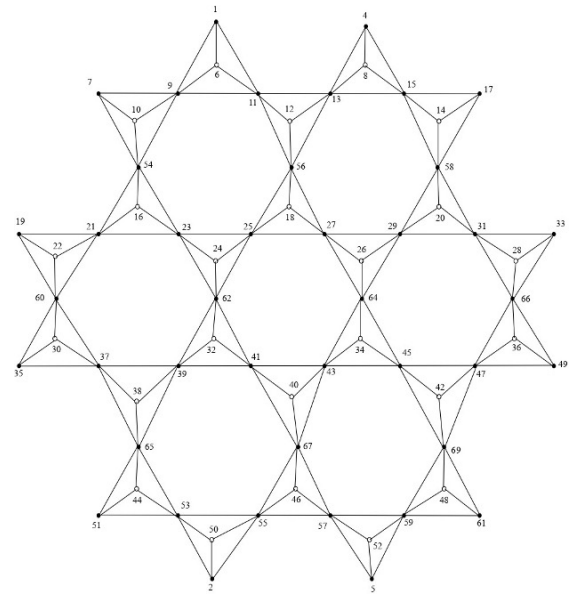
$$\theta(\gamma_i^j) = 3k + \frac{k}{2} + 2i, \quad 1 \leq i \leq 3, 1 \leq j \leq k + 2,$$

$$\theta(w_i) = 6k + \frac{k}{2} + 2i, \quad 1 \leq j \leq k - 1$$

$$\theta(w_{k+j}) = 8k + 2i - 1, \quad 1 \leq j \leq 3, \quad 0 \leq i \leq 2$$

$$\theta(u_i^j) = 1, \quad i = j = 1, \quad \theta(u_i^j) = 4, \quad i = 1, \quad j = 2, \quad \theta(w_{k+3}) = 2i, \quad i = 1, \quad \theta(w_{k+4}) = k - 3 + 2i, \quad i = 0,$$

Here all the pairs of vertices(cities) greater than diameter, The interference are reduced drug awareness wireless Communication through cell phone and Tv s easily reach the people.



RAMN of $(scl_k) \leq k^2 + k - 3, k \geq 8$.

Theorem3:

The Radio Analytic mean number of Hexagonal network is $\eta^2 + 6\eta + \eta, \eta \geq 4$

Proof: we define Hexagonal network are based on Triangular plane tessellation, which is the division of a plane into equilateral triangles. Each HDN can have up to six neighbors. The closest networks to Hexagonal networks some based on regular Hexagons. The HDN are labelled to some manner from the top most to bottom as $v_a^1, v_a^2, v_a^3, v_a^4, \dots, v_a^{2\eta+2},$ as $v_b^1, v_b^2, v_b^3, v_b^4, \dots, v_a^{3\eta+2}, v_c^1, v_c^2, v_c^3, \dots, v_c^{4\eta+1}, w_d^1, w_d^2, w_d^3, \dots, w_d^{3\eta+1}$ etc.

We separate the HDN graphs some disjoint paths .The HDN contains $2\eta + 3$ vertices. The diameter and radius $\eta + 2, \eta - 1$. Then all the path vertices satisfied the radio analytic mean labelling condition.

We will check the radio analytic mean condition Such that $d(u,v) + \left\lfloor \frac{|\theta(u)^2 - \theta(v)^2|}{2} \right\rfloor \geq 1 + \text{diam}$ $\theta(v_a^l) = 6\eta + 1 + i$, where $1 \leq i \leq 2\eta + 3$ and $l = 1, \theta(w_z^q) = 6\eta + 2 - i$, where $1 \leq i \leq 2\eta + 3$, and $q = 2, \theta(v_b^m) = 9\eta + i$, where $1 \leq i \leq 3\eta + 2$ and $m = 3, \theta(v_d^t) = 4\eta + i$, where $1 \leq i \leq \eta + 1$ and $t = 4, \theta(v_c^n) = 12\eta + 2 + i$, where $1 \leq i \leq 4\eta + 1$ and $n = 5, \theta(w_k^p) = \eta + 2i - 1$, where $1 \leq i \leq \eta + 2$ and $p = 6, \theta(w_y^s) =$

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$\frac{\eta i}{2}$, where $\frac{\eta i}{2} \leq i \leq \eta + 3$ and $s=7$, $\theta(w_d^0) = 16\eta + 3 + i$, where $1 \leq i \leq 3\eta + 1$ and $0=8$, $\theta(w_e^d) = 20\eta + i$, where $1 \leq i \leq \eta + 3$ and $d=9$, $\theta(w_r^p) = \eta^3 + 5\eta + i$, where $\eta \leq i \leq \eta + 1$ and $p=10$, $\theta(v) = 1$, $\theta(x) = 2$.

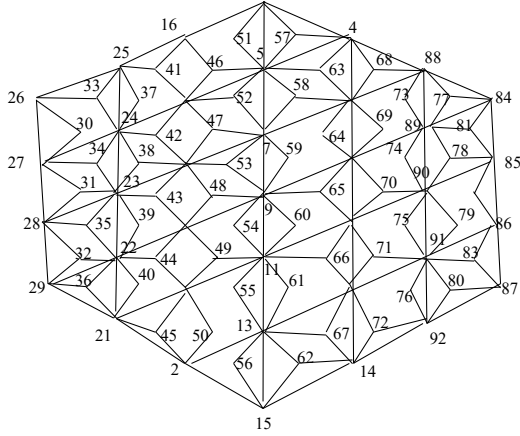


Figure 3: HDN = $\eta^2 + 6\eta + \eta$, $\eta \geq 4$

Case (i) : If $\theta(u^2) \in v_a^l$, $\theta(v^2) \in w_z^q$, where $l=1$, $q=2$, $\theta(u^2) \in 6\eta + 1 + i$, $\theta(v^2) \in 6\eta + 2 - i$, $d(u,v) = 1 \leq i \leq \eta$, i.e $\left\lfloor \frac{|\theta(u^2) - \theta(v^2)|}{2} \right\rfloor \geq \left\lfloor \frac{|(6\eta + 1 + i)^2 - (6\eta + 2 - i)^2|}{2} \right\rfloor \geq \frac{12\eta + 3}{2}$

Case (ii) : consider $\theta(u^2) \in v_b^m$, $\theta(v^2) \in w_d^t$ and $m=3$, $t=4$, where $1 \leq i \leq 3\eta + 2$, $\theta(u^2) = 9\eta + i$, $\theta(v^2) = 4\eta + i$, $\left\lfloor \frac{|\theta(u^2) - \theta(v^2)|}{2} \right\rfloor \geq \left\lfloor \frac{|(9\eta + i)^2 - (4\eta + i)^2|}{2} \right\rfloor \geq (6\eta)^2 + \eta$

We can verify that case (ii) satisfied the Radio analytic mean condition.

Case (iii) : Consider $\theta(u^2) \in v_c^n$, $\theta(v^2) \in w_k^p$ and $n=5$, $p=6$, where $1 \leq i \leq 4\eta + 1$ and $1 \leq i \leq \eta + 2$. We define the value $v_c^n = 12\eta + 2 + i$, $w_k^p = \eta + 2i - 1$.

ie) $\left\lfloor \frac{|\theta(u^2) - \theta(v^2)|}{2} \right\rfloor \geq \left\lfloor \frac{|(12\eta + 2 + i)^2 - (\eta + 2i - 1)^2|}{2} \right\rfloor \geq \eta + 3 - (\eta - 1)$

Case (iv) : Let $\theta(u^2) \in w_y^s$, and $\theta(v^2) \in w_d^0$, $s=7$, $0=8$, where $1 \leq i \leq \eta + 3$. Here $w_y^s = \frac{\eta i}{2}$, $w_d^0 = 16\eta + 3 + i$, $d(u,v) = \eta$. Limit range $\eta/2 \leq i \leq \eta + 3$. Then $\left\lfloor \frac{|\theta(u^2) - \theta(v^2)|}{2} \right\rfloor \geq 1 + \text{diam} - d(u,v)$ is trivially satisfied.

Case (v) : Assume that $\theta(u^2) \in w_r^p$ and $\theta(v^2) \in \theta(v)$. Where $\eta \leq i \leq \eta + 1$. Further more $d(u,v) = \eta + 2$, $w_r^p = \eta^3 + 5\eta + i$. $\left\lfloor \frac{|\theta(u^2) - \theta(v^2)|}{2} \right\rfloor \geq$

$$\left\lfloor \frac{|(\eta^3 + 5\eta + i)^2 - (1)^2|}{2} \right\rfloor$$

ie) Cse (v) fulfill the Radio Analytic mean condition.

Case (vi) : Let $\theta(u^2) \in \theta(x)$ and $\theta(v^2) \in w_z^q$, where $q=2$, $1 \leq i \leq \eta + 1$, $d(u,v) = \eta + 3$. Further $\theta(x) = 1$, $w_z^q = 6\eta + 2 - i$, ie) $\left\lfloor \frac{|\theta(u^2) - \theta(v^2)|}{2} \right\rfloor$

$\geq 3 + \eta$, The condition is trivially satisfied.

Case (vii) : consider $\theta(u^2) \in v_d^t$, $\theta(v^2) \in w_y^s$, where $t=4$, $s=7$, $d(u,v) = \eta$. Here $v_d^t = 4\eta + i$,

$(w_y^s) = \frac{\eta i}{2}$, ie) $\left\lfloor \frac{|\theta(u^2) - \theta(v^2)|}{2} \right\rfloor \geq \left\lfloor \frac{|(4\eta + i)^2 - (\eta i/2)^2|}{2} \right\rfloor \geq 3 + \eta - d(u,v) \geq \eta - 1$.

Case (viii) : Let $\theta(u^2) \in w_k^p$, $\theta(v^2) \in w_d^0$ where $p=6$, $0=8$. The RAMC is $\left\lfloor \frac{|\theta(u^2) - \theta(v^2)|}{2} \right\rfloor \geq 3 + \eta - d(u,v)$. Here $w_k^p = \eta + 2i - 1$, $w_d^0 = 16\eta + 3 + i$, here i range from $1 \leq i \leq 3\eta + 1$.

$$\Rightarrow \left\lfloor \frac{|\theta(u^2) - \theta(v^2)|}{2} \right\rfloor \geq \left\lfloor \frac{|(\eta + 2i - 1)^2 - (16\eta + 3 + i)^2|}{2} \right\rfloor \geq \eta - 1 + \eta - \eta + 1 \geq \eta$$

Case (ix) : If $\theta(u^2) \in v_d^t$, $\theta(v^2) \in w_r^p$, where $t=4$, $p=6$,. Here θ

is a valid radio analytic mean number and valid vertex $v_d^t = 4\eta + i$, $w_r^p = \eta^3 + 5\eta + i$, $\eta \leq i \leq \eta + 1$

$$\Rightarrow \left\lfloor \frac{|\theta(u^2) - \theta(v^2)|}{2} \right\rfloor \geq \left\lfloor \frac{|(4\eta + i)^2 - (\eta^3 + 5\eta + i)^2|}{2} \right\rfloor \geq 3 + \eta - (\eta + 1) \geq \eta$$

Case (x) : Let us take If $\theta(u^2) \in \theta(x)$, $\theta(v^2) \in w_e^d$, limit $d=9$, This proof is similar to $\left\lfloor \frac{|\theta(u^2) - \theta(v^2)|}{2} \right\rfloor \geq 3 + \eta - \eta$

Case (xi) : consider $\theta(u^2) \in v_a^l$, $\theta(v^2) \in w_r^p$, where $l=1$, $p=10$. We define $d(u,v) = \eta + 2$.

We will check the RAMC $\left\lfloor \frac{|(v_a^l)^2 - (w_r^p)^2|}{2} \right\rfloor \geq 1 + \text{diam} - d(u,v)$

$$\Rightarrow \left\lfloor \frac{|\theta(u^2) - \theta(v^2)|}{2} \right\rfloor \geq \left\lfloor \frac{|(6\eta + 1 + i)^2 - (\eta^3 + 3\eta + i)^2|}{2} \right\rfloor \geq 3 + \eta - (\eta + 1) \geq \eta$$

Case (xii) : Let $\theta(u^2) \in w_y^s$, $\theta(v^2) \in v_b^m$. We can prove this case is similar to case (v).

Hexagonal network all the rows wise pair of nodes and column wise pair of nodes satisfied the radio analytic mean condition. Therefore The Radio Analytic mean number of

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Hexagonal network is $\eta^2 + 6\eta + \eta, \eta \geq 4$.

Conclusion:

In this paper using network transforms drug awareness from broad messaging into precision communication. By mapping individuals, schools and communities as vertices and their interactions as edges, we can see exactly how information, influence and risk flow. Central nodes become strategic points to launch awareness campaigns, while detected clusters reveal where targeted support is most urgent. Ultimately a graph based framework turns social connections into a measurable actionable tool making drug awareness efforts more targeted, scalable, and effective at building community resilience. We have received the upper bound of Radio analytic mean number of Oxide and silicate network. This work can be extended by different types of networks as like honeycomb network, copper oxide networks.

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