



Study the Effect of Psychological Counseling and Therapies after Divorce – A Mathematical Overview

Prasenjit Das

*Srichanda M.N.M. Institution
South 24 Parganas, West Bengal, India*

Sipra Naskar

*Victoria Institution
Kolkata, West Bengal, India*

Date of Submission: 02-06-2021

Date of Acceptance: 16-06-2021

ABSTRACT: This article concentrates on the effect of psychological counseling and therapies upon divorced individuals who became mentally ill after the trauma. We have formulated a mathematical model consisting of single, married, divorced and exposed individuals by incorporating the effect of counseling and treatments on individuals after divorce. Through numerical simulations we have identified the parameter that has a pivotal role into the system and discuss the therapeutic approaches and strategies that are beneficiary to them.

KEY WORDS: Divorce, counseling, therapeutic approaches, numerical simulation.

I. INTRODUCTION:

When marriage ends, it mostly becomes traumatic for both partners and while going through a divorce, both individual involve experience with five stages of grief: denial, anger, bargaining, depression, and acceptance at different times, in different ways. Divorce has a direct impact on mental health of an individual. It can really be stressful and this stress may lead to depression and anxiety. Being depressed the individual becomes emotionally blind and often go with self-destructive behavior. These effects on individual's workplace as well in terms of their higher levels of absenteeism, presenteeism, stress, anxiety, and health issues which might lead to them exhibiting poorer performance and lower productivity when they are at the office. Further drastic changes into the economic status also have a significant footprint on his or her mental status. In order to overcome this situation one might consult with psychologists and through proper counseling and therapies like CBT, CPP, DBT, REBT etc. or using antidepressant

as per guidance and treatment of the psychologist the individual may be able to lead his/her normal life again.

II. MATHEMATICAL MODEL

To study the effect of psychological issues into a person in connection with divorce and separation and also the impact of counseling and therapies on them, we now formulate a mathematical model in the following.

We assume that healthy singles after being married a portion of them got divorced and a part of the divorced individuals developed psychological problems and require counseling and treatment. Further we assume that individuals after getting treatment a certain portion of them become normal and remarried. Rest of them remains as usual and a portion of them becomes otherwise normal but decided not to marry again. Based on the above assumption the entire population is assumed to be divided into four subpopulations: Single, S ; Married, M ; Divorced, D and Exposed, E who developed several psychological issues and require treatment. The number of singles, married, divorced and exposed at the end of year n is denoted by S_n, M_n, D_n & E_n respectively. Considering b as average birth rate, d as average death rate, α as average rate of marriage among singles, β as average rate of divorce, γ as average rate of remarriage, δ as average transfer rate due to psychological crisis from divorced class to exposed class and μ as average transfer rate from exposed class because of proper counseling and treatment



and $p > 0$ as a fraction the mathematical model is formulated below:

$$\begin{aligned} S_{n+1} - S_n &= b - (d + \alpha)S_n \\ M_{n+1} - M_n &= \alpha S_n - dM_n - \beta M_n + \gamma D_n + (1 - p)\mu E_n \\ D_{n+1} - D_n &= \beta M_n - dD_n - \gamma D_n - \delta D_n + p\mu E_n \\ E_{n+1} - E_n &= \delta D_n - dE_n - \mu E_n \end{aligned} \quad (1)$$

Considering $S_n = \frac{b}{d+\alpha}$, $E_n = \frac{\delta D_n}{d+\mu}$ and by some simple mathematics system (1) is reformulated as

$$\begin{aligned} M_{n+1} - M_n &= \frac{b\alpha}{d+\alpha} - (d + \beta)M_n + \left(\gamma + \frac{(1-p)\mu\delta}{\mu+d}\right)D_n \\ D_{n+1} - D_n &= \beta M_n + \left(\frac{p\mu\delta}{\mu+d} - \delta - d - \gamma\right)D_n \end{aligned} \quad (2)$$

III. NUMERICAL SIMULATION AND DISCUSSION:

Numerical simulations using hypothetical set of parameter values from the system (2) we observe the following situations:

1. The model system (2) is stable in nature albeit with initial oscillations which is vividly shown in Figure 1. Hence we can say that if marriage occurs into the society in usual manner and number of divorce is within limit there is no catastrophe found in the society.

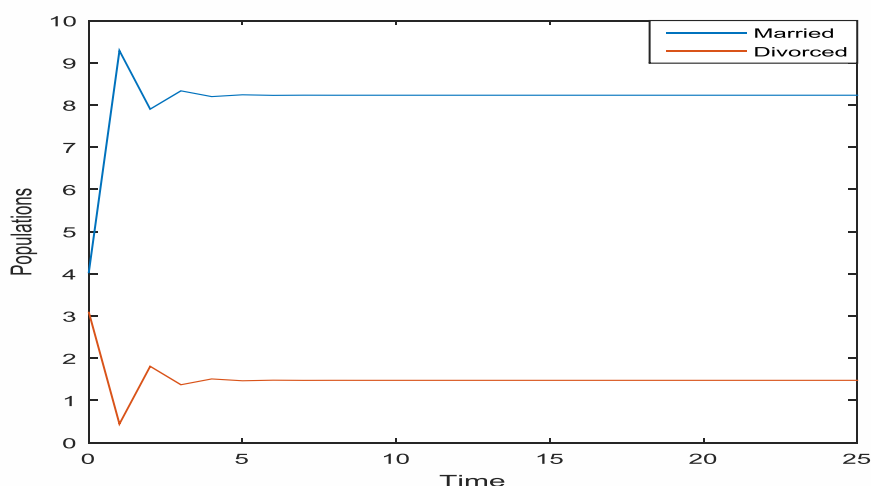


Fig1. Trajectories show that the system is stable in nature with initial fluctuations for the parameter values: $b = 10$, $d = 0.01$, $\alpha = 0.5$, $\beta = 0.2$, $\gamma = 0.1$, $\mu = 0.03$, $\delta = 0.01$, $p = 0.4$.

2. From Figure 2 we observe that the model system (2) ultimately becomes stable after initial random oscillations due to increase of average transfer rate, δ due to psychological crisis from divorced class to exposed class. It reveals that if psychological crisis among the individuals is increased in the society due to divorce or separation there are enormous effect in the society.

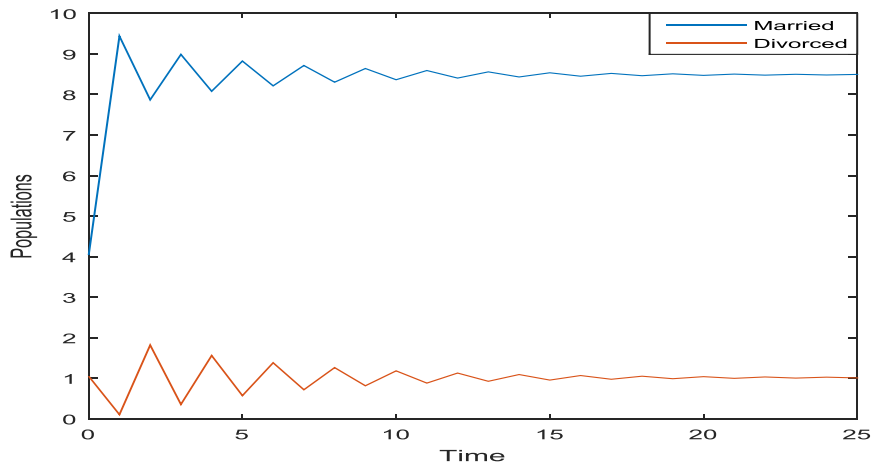


Fig2. Trajectories show that the system becomes stable although with initial random fluctuations for the parameter values: $b = 10, d = 0.01, \alpha = 0.5, \beta = 0.2, \gamma = 0.1, \mu = 0.03, \delta = 0.8, p = 0.4$.

3. Figure 3 illustrates that the model system (2) is stable in nature with initial oscillations due to increase of average transfer rate, μ , from exposed class because of proper counseling and treatment of the affected individuals. Hence proper counseling and treatment has a great role into the system.

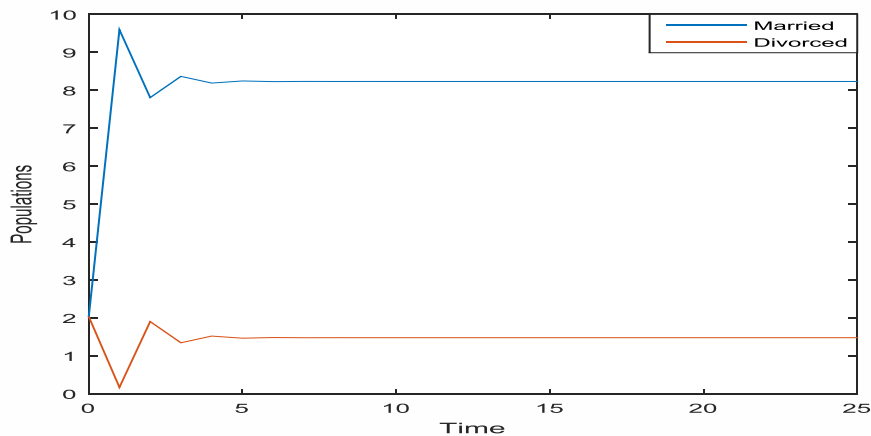


Fig3. Trajectories show that the system is stable in nature with initial fluctuations for the parameter values: $b = 10, d = 0.01, \alpha = 0.5, \beta = 0.2, \gamma = 0.1, \mu = 0.8, \delta = 0.01, p = 0.4$.

Impact of counseling and therapies: In general the divorce is mentally, physically and financially challenging. An individual going through divorce may feel fear, anxiety, grief and depression. To cope up with this many of them choose to begin psychotherapy. Therapist can provide a goal and rational perspective which help them to think rationally for their personal growth and development and also help them to acquire some skills to overcome the difficulties caused through divorce. In this context it is very much essential to develop their self-confidence, patience and adjustment power also through therapies. There are several types of therapies that can be

followed to help the individuals depending upon their situations and some of them are discussed below:

a. Individual Therapy: It is basically a one to one therapy. Through this therapy individual may acquire a deeper knowledge about themselves and learn their need and dislike about partners which helps them to achieve a new perspective in life i.e. basically this therapy indicates their journey of self-rediscovery.

b. Couples Therapy: This therapy is available to the couples who are going through a divorce and



it helps them to feel less negative impact on them.

c. Family Therapy: This therapy offers to share their feeling about the divorce which helps them to process their emotions and adjustment with the changes.

Some other important therapies may also be followed in some intricate situations which are listed below:

1. Client Centered Therapy: Through this therapy, therapist often offers subtle guidance and encouragement to the individual so that he/she can take his/her own control.

2. Cognitive or Cognitive Behavioral Therapy: CBT treats dysfunctional thinking of the individual and as a result therapist focuses on thoughts rather than himself/herself as a person.

3. Existential Therapy: This therapy emphasizes and helps the individual to manage the aspects of the human condition such as isolation, meaninglessness, mortality and freedom.

4. Gestalt Therapy: This therapy focuses on personal responsibility of the affected person along with one's perception rather than the interpretations. It helps the individual to focus on his/her present situation.

5. Psychoanalytic or Psychodynamic Therapy: This therapy explores unconscious feeling and thoughts and impacts of the past on the present.

6. Accelerated Experiential Dynamic Therapy: It explores difficult emotional and relational experiences to develop coping tools that allow better functioning.

7. Coherence Therapy: It helps individuals empathetically and quickly delves into deeply held emotional belief.

8. Collaborative Therapy: By this therapy both the therapist and the individuals use knowledge and experiences to make progress.

9. Conflict-Resolution Therapy: With this therapy the individuals learn to resolve conflicts by minimizing stress.

10. Core Process Psychotherapy: It is a mindfulness based approach that focuses on individual's body, mind and self-exploration and healing.

11. Dialectical Behavior Therapy: It is a problem solving and acceptance based therapy to treat severe and chronic mental health issues along with borderline personality disorder, suicidal thoughts etc.

12. Holistic Psychotherapy: It emphasizes on the relationship between mind, body and spirit and integrates with other therapeutic approaches.

Most of the psychotherapists use an integrated approach which combines various aspects of the above mentioned therapeutic approaches and then they customize the approach based on the individual's needs and preferences. This integrated approach is usually as effective as a singular therapeutic approach.

Further to overcome the stressful situation due to divorce individuals may follow several strategies like breathing exercises or meditation to increase mindfulness and talking with a trusted friend. Trying for a new perspective and taking adequate self care individuals may also reduced their stress and difficulties.

IV. CONCLUSION:

In this article we have studied a mathematical model of Divorce by incorporating psychological crisis related to it. We have identified a parameter 'average transfer rate, δ ' that has a great role into the system. If this transfer rate increases i.e. if a large number of divorced individuals became mentally ill then the system is highly disturbed through random oscillations. But ultimately it becomes stable through proper counseling, aforesaid suitable psychotherapy or clinical treatment (for worst cases). Hence psychological counseling, therapies and treatments play a vital role in our society and it is like a ray of light in darkness.

REFERENCES:

- [1]. Amato, Paul R., and Denise Previti. (2003). "People's Reasons for Divorcing: Gender, Social Class, the Life Course, and Adjustment." *Journal of Family Issues*, 24, 602-626.
- [2]. Kitson, Gay C. and William, M. Holmes. (1992). *Portrait of Divorce: Adjustment to Martial Breakdown*. Vol.99, Guilford Press.
- [3]. Sharma I, Pandit R, Pathak A., Sharma R. (2013). Hinduism, marriage and mental illness. *Indian J Psychiatry*, 55, 243-249.
- [4]. Graff, R.W., Whitehead, G.I., & LeCompte, M. (1986). Group treatment with divorced women using cognitive-behavioral and



- supportive-insight methods. *Journal of Counseling Psychology*, 33, 276-281.
- [5]. Milardo, R.M. (1987). Changes in social networks of women and men following divorce: A review. *Journal of Family Issues*, 8, 78-96.