

# Ghanas Mathematical Model of Conjugal Associations

Jesus Gallardo\*

Department of Didactics of Mathematics, University of Malaga, Malaga, Spain

## Abstract

Changes in the ratios of married people, adulterers, and divorcees are explained by the creation of a mathematical model in this paper. Using the equations expressing the proportions of adulterers and divorcees, a formula was created to predict the percentage of couples in the country who use the inversion transformation. Two threshold conditions were revealed by the qualitative study: The fundamental reproductive numbers for an adulterer and a divorcee in a married setting. A divorcee persuades a spouse to dissolve their marriage on average every year, according to these threshold conditions. However, the instability of the divorce-adultery equilibrium point indicates that a significant proportion of couples were either divorcing or committing adultery. A couple may occasionally sleep apart for five or six days each month outside of their union. The sensitivity analysis revealed that the rate at which spouses end their relationships when influenced by others is the primary cause of the country's growing divorce problem. However, the rate at which an adulterer divorces their spouse has a significant impact on the country's adultery prevalence.

**Keywords:** Inversion transformation • Mathematical model • Equilibrium point

## Introduction

Every society, no matter how large or small, places a high value on marriage. It is a legal way for the couple to have children and achieve sexual fulfillment, as well as a platform for their friendship and mutual support. In advanced nations like the United States of America, the United Kingdom, Germany, Canada, and others, couples frequently have one to three children. However, family sizes vary across the majority of African nations, including Ghana. Couples in this developing nation typically have three to six children in the hope that their offspring will provide for them in their later years. Marriage is the legally or formally recognized union of two people, typically a man and a woman, as partners in a personal relationship. Marriage can take many different forms depending on the cultural and philosophical views of the people who live in that region or civilization. Marriage takes many different forms in Ghana. Marriage can be ordinance or customary depending on the beliefs, religion, level of education, and financial capabilities of the parties. Ordinance marriage is a civil union governed by the marriage act. It is a legal union between a man and a woman that is strictly monogamous, completely secular, and not at all religious (christian). The union of a man and a woman in a customary marriage is arranged by the parties' families on the basis of their doctrine (customary law), concepts, and beliefs. In point of fact, the customs that govern this kind of union vary from one ethnic group to the next and may even share few characteristics with other ethnic groups in the country. On the other hand, divorce can be a planned or a fault-based event that typically occurs in a couple's lives. Divorce rates worldwide are generally rising in the 21st century. The pattern of the divorce rate is very different from country to country and continent to continent [1].

## Discussion

The majority of couples do not know how their marriage pattern changes

*\*Address for Correspondence:* Jesus Gallardo, Department of Didactics of Mathematics, University of Malaga, Malaga, Spain, E-mail: gallardoromero@uma.es

**Copyright:** © 2022 Gallardo J. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

**Date of Submission:** 02 October 2022, Manuscript No. jacm-22-82318; **Editor assigned:** 04 October 2022, PreQC No. P-82318; **Reviewed:** 16 October 2022, QC No. Q-82318; **Revised:** 21 October 2022, Manuscript No. R-82318; **Published:** 28 October 2022, DOI: 10.37421/2168-9679.2022.11.497

over time. These marriages either end in divorce or become extremely contentious, with one partner sleeping outside with a partner of the opposite sex. The couple's innocent children frequently experience mental trauma, drop out of school, or perform horribly academically. The authors identified the driving forces that have caused the divorce rate in the United States to rise at the expense of lowering the marriage rate, noting that divorcees typically experience higher levels of psychological distress and depression when compared to the couple. They observed that the abolition of laws restricting marriage between races over time, women's participation in the labour force, the sexual revolution, the supreme court's recognition of marriage as a fundamental right in the United States constitution, and divorce have all contributed to this trend. The authors discovered that, in Ghanaian society, women divorce at a younger age (mean duration of 9.68 years) than men do (mean duration of 16.63 years). The authors assessed the relationship between couples and the factors that influence it using statistical tools. The authors vividly suggested some key parameters in the atmosphere of controlling the problem of divorce and introduced separated couples and divorcees under stress into the marriage divorce model. The author created a mathematical model to describe how couples interact with each other, divorce, and remarriage in Denmark. The model showed that couples with less education divorce at a younger age than couples with more education. A mathematical model was created by the authors that includes people who are capable of finding a partner in life but have not yet married, the number of couples that have split up for a short time, and the number of divorcees. The author utilized the discrete version of the mathematical model, which included virgins, married people, divorcees, and widows based on gender, and recommended that virgins receive extensive education in order to engage in marriage. The threshold condition for the occurrence of the problem of divorce, which is dependent on the rate at which the spouse divorces their partner, the rate at which divorcees relapse into being a couple, and the natural death rate from the divorced group and the separated group, was observed in Ghana. This mathematical model also includes married people, separated couples, and divorced people as dependent variables over time. However, the mathematical model's primary function is to anticipate the movement of individuals from one group to another. Based on a hybrid score-accuracy function, the authors developed a neutrosophic multi-criteria group decision making model [2].

The current research on divorce does not take into account the pressure exerted by close friends and family members who may not share the interests of either spouse (the man or the woman) and who ultimately result in the breakup of the marriage. Nevertheless, the on-going mathematical models did not account for adultery, which is the primary cause of divorce, making it difficult to identify the primary underlying cause of divorce in the nation. People go through life cycles, and the numbers of married people, divorcees, and

adulterers fluctuate over time, despite the fact that numerous studies have examined the causes of marriage, divorce, and adultery. Additionally, the dynamic interactions between these three essential components over time have received little attention over the years [3-5].

---

## Conclusion

The creation of a mathematical model that takes into account the primary underlying factors that lead to a spouse's divorce is crucial and impressive. The extensive comprehension of separation in the country is acquired by utilizing math to make sense of how individuals go from the marriage gathering to the infidelity gathering to the separation gathering as well as the other way around. As can be seen, this study incorporates all of the aforementioned issues into a mathematical model to fully comprehend the dynamics of marital interactions with adulterers and divorcees. Second, the proportion of couples who either end up divorcing or engage in extramarital sex can be predicted using this model. There is no doubt that the model that explains the danger of on-going divorce in the nation accurately reflects the contributions and effects of each parameter. Last yet not the least, the drawn out conduct of a couple in a climate of divorced people can't be disregarded in this paper.

---

## Acknowledgement

None.

---

## Conflict of Interest

None.

---

## References

1. Åkesson, Susanne, Jens Morin, Rachel Muheim and Ulf Ottosson. "Dramatic orientation shift of white-crowned sparrows displaced across longitudes in the high arctic." *Current Biology* 15 (2005): 1591-1597.
2. Fleissner, Gerta, Elke Holtkamp-Rötzler, Marianne Hanzlik and Michael Winkhofer et al. "Ultrastructural analysis of a putative magnetoreceptor in the beak of homing pigeons." *J Compar Neurol* 458 (2003): 350-360.
3. Biskup, T., Schleicher, E., Okafuji, A., and Link, G., Hitomi et al. Direct observation of a photoinduced radical pair in a cryptochrome blue-light photoreceptor. *Angew Chem Int* (2009): 404– 407.
4. Bonadonna, F., C. Bajzak, S. Benhamou and K. Igloi, et al. "Orientation in the wandering albatross: Interfering with magnetic perception does not affect orientation performance." *Proc Royal Soc B: Biological Sciences* 272 (2005): 489-495.
5. Alerstam, Thomas. "Conflicting evidence about long-distance animal navigation." *Science* 313 (2006): 791-794.

**How to cite this article:** Gallardo, Jesus. "Ghanas Mathematical Model of Conjugal Associations." *J Appl Computat Math* 11 (2022): 497.