Dear editors,

The way in which religious texts and sources depict the processes involved in the regulation of life is an interesting and rich topic. For example, the Holy Bible, the religious basis of Western civilization, is a document that includes references to medical, as well as historic cultural practices[1]. Sun[2] has already demonstrated that the Bible contains rich medical materials on different subjects in which the roots of modern medicine can be seen. We would like to expand this view to show that religious documents, with a focus on the Holy Bible, are illustrative of period understanding of life and human biological rhythmicity and chronobiology.

Cyclical changes in the natural environment make the coordination of biological activities (events, durations and the timing among them) highly important for living species, including humans[3]. Biological rhythms can be cued by the alternation of day and night, lunar cycles, as well as to the succession of the seasons. Chronobiology is a multidisciplinary field of biology that studies these biological rhythms[4]. Physiological and behavioral characteristics (body temperature, alertness, daily performance, wake/sleep cycle, feeding cycles, and activity/resting cycles) exemplify some elements of human life that are regulated by natural cycles. When these rhythms are part of a 24-hour cycle (mostly regulated by light-dark cycles) they are called circadian rhythms. From a biological perspective, circadian rhythms are daily cycles of physiology and behavior that are driven by an endogenous oscillator with a period of approximately one day[5]. When the rhythms have a period that closely follows the seasons, they are called circa-annual rhythms. One of the strongest influences on current biorhythms, and their evolution is the sun: Daily light-dark cycles and the seasonal changes in day length have great importance in regulating timing, but also these solar patterns, at evolutionary time scales, are responsible for the development of the mechanisms themselves[6,7].

The importance of how natural cycles affect human activity and life rhythms is clearly expressed in religious documents, so too are ancient cultural traditions with cyclical natures (i.e., the 7 day week). For example, the Book of Genesis presents aspects of Earth and Life creation and regulation, and even mentions chronobiology. The First Book of Moses (Genesis)[8] contains the following information concerning human (biological) rhythmicity (about circadian and circa-annual rhythms):

...And God said, Let there be light: and there was light. And God saw the light, that it was good: and God divided the light from the darkness. And God called the light Day, and the darkness he called Night. And the evening and the morning were the first day... And God said, Let there be lights in the firmament of the heaven to divide the day
from the night; and let them be for signs, and for seasons, and for days, and years: and let them be for lights in the firmament of the heaven to give light upon the earth: and it was so... And God made two great lights; the greater light to rule the day, and the lesser light to rule the night...

The relevance of time for the existence of life is expressed in Chapter 3 of Ecclesiastes[10]:

...To everything there is a season, and a time to every purpose under the heaven: a time to be born, and a time to die; a time to plant, and a time to pluck up that which is planted...

Moreover, possibly in reference to the Christian creation story, in Chapter 23 (verse 12) of Exodus and Chapter 25 (verses 3–8) of the Book of Leviticus, the importance of human rest observation on a seven day, or seven year cycle is emphasized, and extended to the cultivation of the land[8], as follows below:

...Six days thou shalt do thy work, and on the seventh day thou shalt rest: that thine ox and thine ass may rest, and the son of thy handmaid, and the stranger, may be refreshed.

...Six years thou shalt sow thy field, and six years thou shalt prune thy vineyard, and gather in the fruit thereof; but in the seventh year shall be a sabbath of rest unto the land, a sabbath for the LORD: thou shalt neither sow thy field, nor prune thy vineyard. That which groweth of its own accord of thy harvest thou shalt not reap, neither gather the grapes of thy vine undressed: for it is a year of rest unto the land. And the sabbath of the land shall be meat for you: for thee, and for thy servant, and for thy maid, and for thy hired servant, and for thy stranger that sojourneth with thee, and for thy cattle, and for the beast that are in thy land, shall all the increase thereof be meat...

The cyclical nature of time is the basis of the underlying rhythmicity which is typical of our lives[5]; circadian rhythms are essential for physiological functions[5], and the earth’s environment imposes recurrent daily, monthly, and annual changes for living organisms[9]. The Holy Bible was not written for a scientific purpose, but it has provided inspiration for scientists, health professionals, educators and physicians in their research[9] and represents the wisdom, medical knowledge and cultural practices present at the time and place of their composition[9].

Our motivation for examining how life rhythms are depicted in the Holy Bible is our belief that Scripture contains important medical, biology, and health messages[9,10–12]. This mental and philosophical exercise may contain significant implications for modern medicine. Based on our observations, it is possible to see that Scripture documents the importance of rhythmicity and the cyclical nature of time, especially for human cultural practices, but also biological life. Thus, these ancient writings could be a non-medical source for understanding the processes involved in regulating the life course.

Conflicts of interest

The authors declare that they have no competing interests.

REFERENCES


Submission Guide

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