

## Introduction & Background

As the need to address climate change becomes more pressing, research have identified several external factors to promote energy saving behaviours including social, economic, and psychological influencers. Household energy consumption makes up 25% of total global energy consumption in 2021 (1). However, fewer articles have focused on the effect of personal internal factors on increasing energy saving behaviours (ESB). Mindfulness refers to a state of being nonjudgmentally in the present moment and fostering self-regulation, cognitive, and behavioural change (2); while connectedness to nature (CTN) refers to the cognitive ecological self-identification and the intrinsic relationship between human and nature (3). Both mindfulness and CTN have demonstrated positive impacts on pro-environmental behaviour. Nonetheless, few studies have quantitatively examined the interrelationships as well as the impacts of mindfulness and CTN on ESB specifically in young adults.

## Research Question and Hypotheses

**Do mindfulness and connectedness to nature impact energy saving behaviours in young adults?**

- H1. An increase in level of mindfulness leads to an increase in level of connectedness to nature in young adults.
- H2. An increase in level of mindfulness leads to an increase in energy saving behaviours in young adults.
- H3. An increase in level of connectedness to nature leads to an increase in energy saving behaviours in young adults.
- H4. Connectedness to nature has a mediator effect between level of mindfulness and energy saving behaviours and the level of mindfulness indirectly affect energy saving behaviours in young adults through its impact on connectedness to nature.
- H5. The frequency and length of meditation practice are positively associated with energy saving behaviours.

## Methodology

- A **quantitative survey** is conducted for primary data collection.
- It focuses on **young adults from the age of 18 to 25** as they are most likely to be affected by climate change and significant brain developments in early adulthood could lead to lifelong changes.
- Participants were undergrads enrolled in **ENV100 course** at UTM.
- The survey comprises seven variables: mindfulness, CTN, environmental attitudes and beliefs, ESB evaluation, psychological and cognitive factors, stress level, and demographic characteristics; with **mindfulness, CTN and ESB** being the three main variables, and others being control variables.
- For **data analysis**, factor analyses including reliability analysis, exploratory factor and principal component analysis are conducted to assess the reliability of the scales and decrease the number of variables. Then, the hypotheses are tested by correlational analysis, regression analysis, mediation analysis and independent T-test.

## Key Findings and Discussion

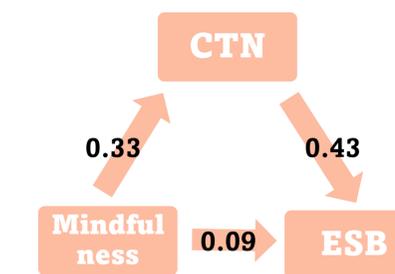
**Demographic:** 554 responses were analyzed. 96.4% were under 25, 55% were female, 68% were domestic students and participants had various academic backgrounds. 71% relied on family financially, 65% did not pay for electricity bills. 86% lived in the urban areas.

### Regression Analysis Results

Independent Variables Included	Adjusted R <sup>2</sup>	Predictor	Coefficients	p
Mindfulness only	0.0487	Intercept	2.414	< .001
		Mindfulness	0.230	< .001
CTN only	0.222	Intercept	1.537	< .001
		CTN	0.520	< .001
Mindfulness and CTN	0.232	Intercept	1.248	< .001
		Mindfulness	0.115	0.004
		CTN	0.488	< .001
Mindfulness, CTN, Environmental attitudes and beliefs, Psychological and cognitive factors	0.276	Intercept	0.608	0.009
		Mindfulness	0.390	0.006
		CTN	0.106	< .001
		Environmental attitudes and beliefs	0.060	0.281
		Psychological and cognitive	0.214	< .001

### Hypotheses testing:

- The correlation results **support H1**, as there is a positive correlation between mindfulness and CTN.
- The regression results shown on the left **support H2 and H3**, as increases in mindfulness and CTN are significantly related to the increase in ESB and there is potential causal relationships. The regression results show that compared to the control variables, mindfulness and CTN explained most of the predicted changes in ESB, dominated by CTN's influence.
- The mediation analysis shown below **support H4** and show that CTN has a significant mediating effect on mindfulness' impact on ESB. Mindfulness has a component effect on CTN of 0.33 and has a direct effect on ESB of 0.09; the indirect effect of mindfulness on ESB is mediated by CTN's component effect of 0.43.



- **H5 was not supported**, as the independent T-test showed no significant variance between the two groups who reported regular meditation practices (N=38) and did not report regular meditation practices (N=516).

### Other findings:

- Female participants have higher stress level, lower level of mindfulness, and a higher level of CTN. Moreover, stress level is found to be negatively correlated with the level of mindfulness.

### Discussion:

- Self-reported data collection method is subject to inherent biases due to subjective interpretation and personal feelings.
- The biased economic conditions of the participants may lead to their lack of control or monetary incentive to decrease their energy usage, which may negatively impact their ESB.
- Future studies should construct experimental designs such as randomized controlled groups as a part of the observational experimental studies to establish concrete causal relationships between mindfulness, CTN and ESB. Moreover, similar studies can be done in other geographic areas such as the Eastern countries to test the consistencies of the findings.

## References

1. IEA. (2021). *Electricity Information: Overview*. <https://www.iea.org/reports/electricity-information-overview/electricity-consumption>
2. Bergomi, C., Tschacher, W., & Kupper, Z. (2013). Measuring mindfulness: First steps towards the development of a comprehensive mindfulness scale. *Mindfulness*, 4(1), 18–32. <https://doi.org/10.1007/s12671-012-0102-9>
3. Dong, X., Liu, S., Li, H., Yang, Z., Liang, S., & Deng, N. (2020). Love of nature as a mediator between connectedness to nature and sustainable consumption behavior. *Journal of Cleaner Production*, 242, 118451. <https://doi.org/10.1016/j.jclepro.2019.118451>



## Key Takeaways

- The results of this study show that **mindfulness and connectedness to nature exert direct positive effects on energy saving behaviours**. Connectedness to nature has a significant **mediating effect** on the relationship between mindfulness and energy saving behaviours.
- The findings indicate that mindfulness and connectedness to nature may be crucial in promoting energy saving behaviours in young adults, which reinforces the importance of supporting mindfulness and nature programs and initiatives by policymakers and educational institutions.