Research Paper

Empathy and Moral Identity as Predictors of Peer Support Volunteerism for Preventing Farmer Suicide in Punjab

Dr. Harprit Kaur[1], Amandeep Singh[2]* & Sandeep Kaur[3]

ABSTRACT

The main focus of the present study was to see the relative contribution of empathy and moral identity in peer support volunteerism for preventing suicide among farmers of Punjab. The sample comprised of 30 students from Punjab who agreed for becoming a peer support volunteer in the prevention of farmers' suicide in Punjab and 33 students who declined the same. For this purpose, the Toronto Empathy Questionnaire (Spreng, Margaret, McKinnon, Raymond, & Levine, 2009) and Moral Identity Scale (Aquino & Reed, 2002) were administered. Binary logistic regression was run to examine to what extent it is possible to predict volunteerism from empathy and moral identity. Results showed that empathy and moral identity internalisation were found to be significant predictors of peer support volunteerism while moral identity symbolisation was found to be a non-significant predictor of peer support volunteerism. The current findings suggest that enhancing empathy and moral identity can help individuals to be involved in prosocial acts and volunteerism.

Keywords: *Peer Support Volunteerism, Suicide, Empathy, Moral Identity, Moral Identity Symbolisation, Moral Identity Internalisation*

Peer support is based on the belief that people can offer useful support, encouragement, hope, and perhaps mentorship to others facing adverse conditions (Davidson, Chinman, Sells & Rowe, 2006). Peer support volunteerism belief is well accepted for many conditions, such as addiction, trauma, or cancer, stigma, and stereotypes about mental illness. Research has shown the use of peer support aids in reducing hospitalizations and other emergency interventions and increases the involvement in community events and organizations (MHA, 2017). Individuals who are helped by peers tend to experience more thorough and longer-lasting recoveries (Vestal, 2013).

The concept of empathy was initially coined by Titchner who translated "Eirfiihlung" as to "feel "or "find" one's way into another 's experience (Wispé, 1987). Empathy refers to the ability to understand and respond adaptively to others' emotions, succeed in emotional communication, and promote prosocial behaviour (Spreng et al., 2009). Research has shown

---

[1] Head & Associate Professor, Department of Psychology, Punjabi University, Patiala, Punjab, India.
[2] Senior Research Fellow, Department of Psychology, Punjabi University, Patiala, Punjab, India.
[3] Junior Research Fellow, Department of Psychology, Punjabi University, Patiala, Punjab, India.
*Responding Author

the distinction between cognitive and emotional components of the construct (Preston & de Waal, 2002). *Cognitive empathy* involves an intellectual or imaginative apprehension of another's emotional state, (Lawrence, Shaw, Baker, Baron-Cohen, David, 2004). By contrast, *emotional empathy* is commonly thought of as an emotional reaction (e.g., compassion) to another's an emotional response (e.g., sadness) (Preston et al., 2002).

Moral identity refers to the degree to which people's self-concepts center on moral traits. One's self-concepts (i.e. our ideas about who we are) are often based on general traits that one thinks one does or does not possess (Aquino & Reed, 2002). Research into moral identity emphasizes the distinction between internalisation moral identity and symbolisation moral identity (Aquino et al., 2002). Moral identity internalization refers to the degree to which moral traits are central to the self-concept, so this is a more private aspect of moral identity. By contrast, *moral identity symbolization* refers to the degree to which the traits are reflected in the respondent's actions in the world. This is the more social aspect of moral identity.

Several studies have suggested that empathy and moral identity plays a major role in whether a person could offer support to others in an adverse state or not. For example, a study conducted by Robert and Strayer (1996) on 73 children in 3 age groups (5, 9, 13 years old) suggested that empathy could be an important aspect in the contribution of prosocial behaviour, defined as voluntary behaviour intended to benefit another with no goal other than to help fellow humans. Another finding by Stolinski, Ryan, Hausmann, and Wernli (2007) confirmed that empathic concern, perspective-taking, personal distress, and guilt on perceptions of volunteer experiences influence the intentions to continue volunteering among buddy volunteers serving HIV positive clients. In line with this conclusion, Wilhelm and Becker (2010) found that empathetic concern is strongly correlated with helping behaviour.

Veludo-de-Oliveira, Pallister, and Foxall (2015) explored the extent to which young adult volunteers perform voluntary service for selfless reasons by investigating the role of altruism, empathy, and beliefs in their commitment to voluntary projects that last for an extended period of time. Results of the study confirmed that empathy, altruism, and belief in the commitment are strongly related to voluntary services.

Whereas, several studies have suggested moral identity is a strong predictor of prosocial behaviour, volunteerism, and involvement in community services. For example, Matsuba, Hart, and Atkins (2007) reported that commitment to volunteerism is a result of demographic qualities, personality, moral identity and social relationships. According to Hart, Atkins, and Ford (2010) family influences have a direct effect on the formation of moral identity which further leads to a commitment to the voluntary services.

van Goethem, van Hoof, van Aken, Raaijmakers, Boom and Orobio de Castro (2012) conducted a study on 698 Dutch adolescents (12 to 20-year-old) and found that moral identity is positively related to how likely they were to volunteer and their understanding towards volunteerism. In line with this conclusion, Winterich, Mittal, and Aquino (2013) reported that the effectiveness of recognition on charitable behavior is dependent on the joint influence of two distinct dimensions of moral identity: internalization and symbolization. They reported that recognition increases charitable behavior among those characterized by high moral identity symbolization and low moral identity internalization.

Empathy and Moral Identity as Predictors of Peer Support Volunteerism for Preventing Farmer Suicide in Punjab

Recently, about 800000 persons worldwide lost their lives by suicide (WHO, 2014). India accounted for 258,000 (82%) of the suicides in the South-East Asia Region countries and the suicide rate in the region was 17.7 per 100,000 populations (WHO, 2014). Higher suicide rates for farmers, 100 years after Durkheim (Lester, 1994) have been identified as a symptom of a larger socio-economic malaise – the crisis in Indian agriculture (Government of India, 2007; Reddy & Mishra, 2007; Deshpande & Arora, 2010; Vasavi, 2012). An article 'Over 12,000 farmer suicides per year, Centre tells Supreme Court' published in the Times of India (2017) revealed that over 12,000 suicides were reported in the agricultural sector every year since 2013 (The Times of India, May 3, 2017).

Information from a state like Punjab, which has witnessed an alarming rise in the number of farmer suicide during from past few years. An article *'Report: 16,606 farm suicides in 15 years'* published in The Tribune (2018) revealed that 16,606 farm suicides have been reported during 2000-2015 (The Tribune, January 11, 2018).

With such alarming rate of farmer suicide in Punjab, one of the solutions for the prevention of farmer suicide could be through setting up peer support volunteerism which has been effective in the west (MHA, 2017). With that in mind, an effort was made to see the efficacy of peer support volunteerism for the prevention farmers' suicide in Punjab by inducing youth who would identify distressed farmers in Punjab and would be imparting structured brief counselling to distressed farmers of Punjab. Thus, the current study emphasised on the relative contribution of certain characteristics or factors, empathy and moral identity that would make an individual be willing to become a peer support volunteer for the prevention of farmers' suicide in Punjab.

Based on the above findings, it was hypothesized that empathy and moral identity internalisation and moral identity symbolisation would significantly contribute in peer support volunteerism and Peer support volunteers would be higher on empathy and moral identity as compared to non-peer support volunteers

METHOD
Participants
The sample of present study comprised of 30 (15 Males & 15 Females) university/ college students, with an age range of 21-25 years old, who volunteered for becoming a peer support volunteer in prevention of farmers' suicide in Punjab and 33 (15 Males & 18 Females) university/college students, with an age range of 21-25 years old, who declined for the same. They were selected incidentally from several college/ university students from Patiala, Fatehgarh Sahib, Bathinda, Barnala, and Sangrur districts of Punjab.

Demographic characteristics
Demographic data for gender and place of residence of respondents have been presented in Table 1. The table shows that the participants comprised of 50 % representation of males and 52.3 % females. In addition, the majority of the participants belonged to Patiala district, 35 %, followed by 19.04 % belonged to Sangrur district, 16 % were from Bathinda district & Fatehgarh Sahib district, and specifically, 14.28 % individuals were from Barnala district.

Table 1 Respondents characteristics

Characteristic	Category	N	%
Sex	Male	30	50
	Female	33	55
Residence	Patiala	22	35
	Bathinda	10	16
	Sangrur	12	19.04
	Fategarh Sahib	10	16
	Barnala	9	14.28

Measures

Participants from peer support volunteer (PSV) group and non-peer support volunteer (NON-PSV) group completed Toronto Empathy Questionnaire (TEQ, Spreng et al., 2009) and Moral Identity Scale (Aquino & Reed, 2002).

The Toronto Empathy Questionnaire (TEQ, Spreng, et al., 2009)

The Toronto Empathy Questionnaire (TEQ, Spreng, et al., 2009) is a 16 item, a measure of global empathy. The questionnaire contains statements that encompass a wide range of attributes associated with the theoretical facets of empathy such as, emotion comprehension and sympathetic physiological arousal. Participants respond to statements such as 'When someone else is feeling excited, I tend to get excited too' and 'I find that I am 'in tune' with other people's moods' using a five-point Likert scale. The scale assesses the frequency that the statements are considered true and ranges from 0 = never, 1 = rarely,2= sometimes,3= often to 4 = always). Scores are summed to derive total for the TEQ, which can range from 0 to 64, with high scores indicating higher levels of empathy. Kourmousi, Amanaki, Tzavara, Merakou, Barbouni, and Koutras (2017) found Cronbach's alpha coefficient to be satisfactorily at 0.72.

Moral Identity Scale (MIS, Aquino & Reed, 2002)

Aquino and Reed (2002) constructed a scale to assess the degree to which people's self-concepts center on moral traits. The Moral Identity Scale has two subscales, internalisation (refers to how individuals see themselves) and symbolisation (refers to which individuals centres their moral traits in reference to the society) with five items each. The scale ranges from 1= strongly disagree to 5= strongly agree. Internal consistency of the scale was found to be rα=.83 (Aquino et al., 2009).

Reliability of the tools used

The internal consistency estimate for the current sample of The Toronto Empathy Scale and Moral identity scale were determined using Cronbach's alpha. The result showed that The Toronto Empathy Scale had the reliability of **α = .85** and The Moral Identity Scale hadthe reliability of **α = .87** for internalisation and **α = .80** for symbolisation.

Procedures

The present study comprised of **three stages** in the research
* In the first stage, '**Life Skill Awareness Camps'** were organized at the various colleges/ universities of Patiala, Sangrur, Fatehgarh Sahib, Barnala and Bathinda to sensitize youth about farmers' suicide in Punjab and also to induce them to become

peer support volunteers for the prevention of farmers' suicide in Punjab. A total number of 63 individuals agreed to become PSV.

- In the second stage, after the identification of 63 PSVs at the Punjabi University, 5 -7 pieces of training on '**Capacity Building'** of PSVs were conducted. Selected PSVs were psycho-educated about suicide and were trained for imparting structured brief cognitive behavioral therapy using various psychological modules**,** depression, suicidal ideation/behavior, hopelessness & helplessness, mindfulness, interpersonal effective training, cognitive distortion & cognitive restructuring training and psychological first-aid extending over a period of 3 months.

- In the final stage, out of 63 individuals, 30 (15 Males & 15 Females) university/ college students who volunteered for becoming a peer support volunteer in the prevention of farmers' suicide in Punjab and 33 (15 Males & 18 Females) university/college students who declined the same. Individuals who agreed and declined to become Peer Support volunteer (PSV) after workshops and training, were administered Toronto Empathy Questionnaire and Moral Identity Scale to see the role of empathy and moral identity in peer support volunteers

Data Analyses

A binary logistic regression was utilised to examine to what extent it is possible to predict volunteerism from empathy and moral identity. In the analysis, IBM SPSS for Windows version 20 was used.

Ethical Consideration

All participants were briefed about the purpose and design of the study in language the participant understand viz. Hindi, Punjabi, and English. The participants were informed that he/ she could withdraw any time from the study without giving the reasons for the same. The confidentiality of the information was assured and written informed consent was also obtained from the participants.

RESULTS

Binary logistic regression results

Binary logistic regression was run to examine to what extent it is possible to predict volunteerism from empathy and moral identity. Results are depicted in Table 2.

Table 2, Logistic regression of volunteerism on empathy and moral identity

	B	S.E.	Wald	df	Sig.	Exp(B)
internalization	.062	.076	.667	1	.414	1.064
symbolization	-.153	.089	2.993	1	.084	.858
empathy	.212	.063	11.453	1	.001	1.237
Constant	-6.200	1.671	13.762	1	.000	.002

Cox & Snell R Square = .446, Nagelkerke R Square = .595

As shown in Table 2 the model classified 85 % of participants correctly. According to the estimates of Cox & Snell (R^2=.446), the predictors taken together explain almost 45% of the variance in the chance of being a volunteer. According to the estimates of Nagelkerke (R^2= .595), the predictors taken together explain almost 60% of the variance in the chance of being a volunteer.

DISCUSSION

As had been proposed, it was found that empathy and moral identity significantly contributed to predicting peer support volunteerism in the prevention of farmers' suicide in Punjab. Results suggested that as empathy is increased by one point a person will be 1.24 times (statistically significant) more likely to become volunteer than to become non-volunteer. In case of moral identity internalisation and moral identity symbolisation, moral identity internalisation is increased by one point a person will be 1.064 times (statistically significant) more likely to be a volunteer than to be a non-volunteer. In contrast, moral identity symbolisation, as symbolisation is increased by one point a person will be 0.86 times (statistically non-significant) less likely to become a volunteer.

Previous researches into empathy are in line with the present finding which suggests that individuals who are more empathetic towards other individuals are more likely to engage into volunteerism (Eisenberg & Okun, 1996; Veludo-de-Oliveira, Pallister & Foxall, 2015; Bach Defever, Chopik, & Konrath, 2017), prosocial & altruistic behaviour (Still, Dillard, Somera, Kim & Sleight, 2009) and corporate philanthropic decisions (Muller, Pfarrer & Little, 2014). Several related studies have shown that moral identity is positively related to volunteering behaviour (Reed, Kay, Finnel, Aquino, & Levy, 2016), acts of uncommon goodness (Aquino, McFerran & Laven, 2011) and prosocial behaviour (Winterich, Aquino, Mittal & Swartz, 2013). Previous studies have confirmed the current finding that moral identity internalization is more related to volunteerism and prosocial acts than moral identity symbolization are (Aquino et al., 2011; 2013; Reed, 2014).

The explanation for those individuals who were found to be higher on moral identity internalisation as compared to moral identity symbolisation could be their internal motivation to engage in prosocial behaviour or volunteerism regardless of expected recognition or the social standing in the society. The possible explanation for the marked prediction on empathy in peer support volunteer group and non-peer support volunteer group could be because TEQ only measures the emotional empathy, that is, automatic drive to respond appropriately to another's emotions. It means that the people volunteered for the prevention of the farmers' suicide in Punjab were not empathetic because of any extrinsic rewards. Instead, they were intrinsically motivated enough to understand the gravity of a situation of farmers' suicide in Punjab.

Studies have also suggested a theoretical and empirical association between empathy, moral reasoning and prosocial behaviour (Eisenberg & Fabes, 1990; Malti, Gummerum, Keller, & Buchmann, 2009; Carlo, Mestre, Samper, Tur & Armenta, 2011). For instance, theories like empathy-altruism hypothesis of altruistic and prosocial involvement assert that empathy and moral reasoning can be a mechanism for individuals express their prosocial involvement and to satisfy their need to volunteer for individuals in need (Batson & Oleson, 1991; Barr & Higgins-D'Alessandro, 2007; Carlo et al., 2011).

CONCLUSION

The present study has shown that empathy and moral identity are strong predictors of peer support volunteerism. The current study propagates the benefits of peer support volunteerism in youth, which can act as an informal support system to individuals in adverse conditions and can also result in improving their well-being, resilience, and social functioning. The present study implicates that extending our knowledge about empathy and moral identity will

help in our comprehension that why peers are motivated to provide support to individuals suffering from mental health issues and also care for others that can, in the long run, help us enhance survival of others. This study is particularly relevant to educational settings and counselling setups, for example, in schools, which can stimulate students during socialisation process through workshops and extra discussions aimed at developing and inculcating these aspects in their psychological make-up with special emphasis on enhancing empathy and moral identity, that is, with the ultimate goal of increasing the welfare of others and as well the community work for eradicating psychosocial issues like suicide, drug abuse and stigmas and stereotypes about mental illness.

REFERENCES

Aquino, K., & Reed, A., II. (2002). The self-importance of moral identity. *Journal of Personality and Social Psychology, 83*,1423–1440. doi:10.1037/0022-3514.83.6.142.

Aquino, K., McFerran, B., & Laven, M. (2011). Moral identity and the experience of moral elevation in response to acts of uncommon goodness. *Journal of Personality and Social Psychology, 100*(4), 703-718. Retrieved from http://dx.doi.org/10.1037/a0022540.

Bach, R., Defever, A. M., Chopik, W. J., & Konrath, S. (2017). Geographic variation in empathy: A state-level analysis. *Journal of Research in Personality.* https://doi.org/10.1016/j.jrp.2016.12.007.

Barr, J. J., & Higgins-D'Alessandro, A. (2007). Adolescent empathy and prosocial behavior in the multidimensional context of school culture. *The Journal of Genetic Psychology*, *168*(3), 231-250.

Batson, C. D., & Oleson, K. C. (1991). *Current status of the empathy-altruism hypothesis.* Retrieved from https://scholar.google.com/scholar_lookup?title=Current+status+of+the+empathyaltruism+hypothesis&author=C.+D.+Batson&author=K.+C.+Oleson&publication_year=1991.

Carlo, G., Mestre, M. V., Samper, P., Tur, A., & Armenta, B. E. (2011). The longitudinal relations among dimensions of parenting styles, sympathy, prosocial moral reasoning, and prosocial behaviors. *International Journal of Behavioral Development*, *35*(2), 116-124.

Davidson, L., Chinman, M., Sells, D. & Rowe, M. (2006). Peer support among adults with Deshpande, R. S., & Arora, S. (2010). *Agrarian Crisis and Farmers' Suicides.* New Delhi: Sage.

Eisenberg, N., & Fabes, R. A. (1990). Empathy: Conceptualization, measurement, and relation to prosocial behavior. *Motivation and Emotion*, *14*(2), 131-149.

Eisenberg, N., & Okun, M. A. (1996). The relations of dispositional regulation and emotionality to elders' empathy-related responding and affect while volunteering. *Journal of Personality, 64*, 157-183. doi:10.1111/j.1467-6494. 1996.tb00818.

Government of India. (2007). *Report of the Expert Group on Agricultural Indebtedness.* Retrieved from http://www.igidr.ac.in/pdf/publication/PP-059.pdf.

Hart, D., Atkins, R., & Ford, D. (2010). *Family Influences on the Formation of Moral Identity in Adolescence: Longitudinal analyses.* 375-386. https://doi.org/10.1080/030572499103142.

Kourmousi, N., Amanaki, E., Tzavara, C., Merakou, K., Barbouni, A., & Koutras, V. (2017). The Toronto Empathy Questionnaire: Reliability and Validity in a Nationwide Sample of Greek Teachers. *Soc. Sci.*, *6*, 62.

Lawrence, E. J., Shaw, P., Baker, D., Baron-Cohen, S., & David, A. S. (2004). Measuring empathy: Reliability and validity of the empathy quotient. *Psychological Medicine, 34*, 911–919.

Lester D., (1994). *Emile Durkheim: le suicide one hundred years later*. Philadelphia: Charles Press.

Mahapatra, D. (2017, May 3). Over 12,000 farmer suicides per year, Centre tells Supreme Court. *The Times of India.* Retrieved from https://timesofindia.indiatimes.com/india/over-12000-farmer-suicides-per-year-centre-tells-supreme-court/articleshow/58486441.cms.

Malti, T., Gummerum, M., Keller, M., & Buchmann, M. (2009). Children's moral motivation, sympathy, and prosocial behavior. *Child development*, *80*(2), 442-460.

Matsuba, M. K., Hart, D., & Atkins, R. (2007). Psychological and social-structural influences on commitment to volunteering. *Journal of Research in Personality, 41*(4), 889-907. Retrieved from http://dx.doi.org/10.1016/j.jrp.2006.11.001.

Mental Health Services. *Peer Services.* Retrieved from http://www.mentalhealthamerica.net/peer-services.

Muller, A.R., Pfarrer, M.D. and Little, L.M. (2014) A Theory of Collective Empathy in Corporate Philanthropy Decisions. *Academy of Management Review, 39*,1-21. http://dx.doi.org/10.5465/amr.2012.0031.

Preston, S. D., & de Waal, F. B. M. (2002). Empathy: Its ultimate and proximate bases. *Behavioral and Brain Sciences, 25*(1), 1-20. DOI: 10.1017/S0140525X02000018.

Reddy, D. N., & Mishra S. (2009). *Agrarian Crisis in India*. New Delhi: Oxford University Press.

Reed, A. II, Kay, A., Finnel, S., Aquino, K., & Levy, E. (2016). I don't want the money; I just want your time: How moral identity overcomes the aversion to giving time to prosocial causes. *Journal of Personality and Social Psychology, 110*(3), 435-457. Retrieved from http://dx.doi.org/10.1037/pspp0000058.

Roberts, W., & Strayer, J. (1996). Empathy, emotional expressiveness, and prosocial behaviour. *Child Development, 67*, 449–470.

Salzer, M. S., & Shear, S. L. (2002). Identifying consumer-provider benefits in evaluations of consumer-delivered services. *Psychiatric Rehabilitation Journal, 25*(3), 281-288. http://dx.doi.org/10.1037/h0095014.
    serious mental illness: A report from the field. *Schizophrenia Bulletin, 32*(3), 443-450.

Spreng, R. N., McKinnon, M. C., Mar, R. A., & Levine, B. (2009). The Toronto empathy questionnaire: Scale development and initial validation of a factor-analytic solution to multiple empathy measures. *Journal of Personality Assessment, 91*, 62-71.

Stiff, J. B., Dillard, J. P., Somera, L., Kim, H. & Sleight, C. (2009). *Empathy, communication, and prosocial behavior, Communication Monographs, 55*(2), 198-213, DOI: 10.1080/03637758809376166.

Stolinski, A. M., Ryan, C. S., Hausmann, L. R. M., & Wernli, M. A. (2004). Empathy, guilt, volunteer experiences, and intentions to continue volunteering among buddy volunteers in an AIDS organization. *Journal of Applied Biobehavioural Research, 9*(1),1– 22.

Tania M. Veludo-de-Oliveira, John G. Pallister & Gordon R. Foxall (2015) Unselfish? Understanding the Role of Altruism, Empathy, and Beliefs in Volunteering Commitment. *Journal of Non-profit & Public Sector Marketing, 27*(4), 373-396, DOI: 10.1080/10495142.2015.1080504.

Thind, A. (2018, January 11). Report: 16,606 farm suicides in 15 years. *The Tribune*. Retrieved from http://www.tribuneindia.com/news/punjab/report-16-606-farm-suicides-in-15-years/526766.html.

van Goethem, A. A. J., van Hoof, A., van Aken, M. A. G., Raaijmakers, Q. A. W., Boom, J., Orobio de Castro, B. (2012). The role of adolescents' morality and identity in volunteering. Age and gender differences in a process model. *Journal of Adolescence*, *35,* 509-520. doi: 10.1016/j.adolescence.2011.08.012.

Vasavi, A. R. (2012). *Shadow Space: Suicides and the Predicament of Rural India*. New Delhi: Three Essays Collective.

Vestal C. Stateline. The PEW Charitable Trusts; Sep 11, 2013. 'Peers' seen easing mental health worker shortage; pp. 1–3.

WHO (World Health Organ.). 2014. *Preventing suicide: a global imperative*. Geneva: WHO.

Wilhelm, M. O., & Bekkers, R. (2010). Helping behaviour, dispositional empathic concern, and the principle of care. *Social Psychology Quarterly, 73*(1), 11–32.

Winterich, K. P., Aquino, K., Mittal, V. and Swartz, Richard (2013). When Moral Identity Symbolization Motivates Prosocial Behavior: The Role of Recognition and Moral Identity Internalization. *Journal of Applied Psychology, Forthcoming*. https://ssrn.com/abstract=2261193.

Winterich, K. P., Aquino, K., Mittal, V., & Swartz, R. (2013). When moral identity symbolization motivates prosocial behavior: The role of recognition and moral identity internalization. *Journal of Applied Psychology, 98*(5), 759-770. Retrieved from http://dx.doi.org/10.1037/a0033177.

Wispé, L. (1987). History of the concept of empathy. In N. Eisenberg & J. Strayer (Eds.), *Cambridge studies in social and emotional development. Empathy and its development*. New York, Cambridge University Press.

Conflict of Interest
The authors carefully declare this paper to bear not a conflict of interests