

# Highlights of a recycling behaviour study in South Africa's large urban areas

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## INTRODUCTION

The recently promulgated National Environmental Management: Waste Act (RSA, 2008) requires the delivery of an efficient collection service combined with cooperation from all stakeholders to recycle, including households. This poster presents the highlights from a recycling behaviour survey conducted among a representative sample of 2 004 respondents in 11 of the larger South African urban areas, including all the metropolitan municipalities. The survey was conducted in November 2010, before the Waste Act was widely implemented.

The objective of the study was, within the broader context of understanding post-consumer recycling behaviour, to provide a baseline for domestic waste recycling behaviour in South Africa. The reasons for non-recycling were also explored. Once the drivers of recycling behaviour and the interactions between these drivers are understood, this knowledge can inform decision-making, recycling scheme design, and communication strategies in such a way as to maximise their impact and increase recycling behaviour.

## METHOD

The study used the Theory of Planned Behaviour (TPB) as a theoretical framework (Figure 1). The TPB posits that attitudes, subjective norms and perceived behavioural control are the drivers of intentions to act a certain way. In turn, both intention to behave and perceived behavioural control determine the specific behaviour, in this case, recycling behaviour. Respondents were asked questions that would measure their recycling behaviour (self-reported) and subjective norms, as well as their intention to recycle, attitudes and perceived behavioural control.

Respondents were also requested to choose three statements from a set of 10, which they think are the main reasons for why people do not recycle. The 10 statements referred to situational factors (three of which related to household factors and three to recycling facilities), knowledge (one statement), and psychological factors (three statements).

## FINDINGS

Fitting the TPB model to the survey data shows that subjective norm ( $\beta=0.589$ ;  $p<0.0001$ ) have a greater influence than either attitude ( $\beta=0.275$ ;  $p<0.0001$ ) or perceived behavioural control ( $\beta=-0.020$ ; ns) on intention to recycle (Figure 1). Together, the three variables namely: attitude, subjective norm and perceived behavioural control, account for 46.4% of the variation in intention to recycle ( $R^2=0.464$ ). Although both intention to recycle ( $\beta=0.131$ ;  $p<0.0001$ ) and perceived behavioural control ( $\beta=0.276$ ;  $p<0.0001$ ) influence recycling behaviour and account for 26.4% of the variation in recycling behaviour ( $R^2=0.264$ ), the effect of intention to recycle, although significant ( $p<0.0001$ ) is smaller than expected. These findings compare well with similar international studies.

The study was conducted using a random probability sampling method, and therefore allows extrapolation of the findings to South Africans living in our large urban areas. At the time of the survey, 73.1% of the respondents reported not recycling at all (bar 1, Figure 2), with only 26.9% engaging in some degree of recycling behaviour (bars 2-7). Only 3.3% of the respondents indicated that they sort most or all of the five selected recyclables from their household waste and recycle it on a frequent basis (bars 5-7, Figure 1). On average, the respondents also had negative scores ( $\bar{x}<4.0$ ) for intention to recycle ( $\bar{x}=3.76$ ), attitude towards recycling ( $\bar{x}=3.86$ ), subjective norm ( $\bar{x}=3.37$ ) and perceived behavioural control ( $\bar{x}=3.30$ ) (Table 1).

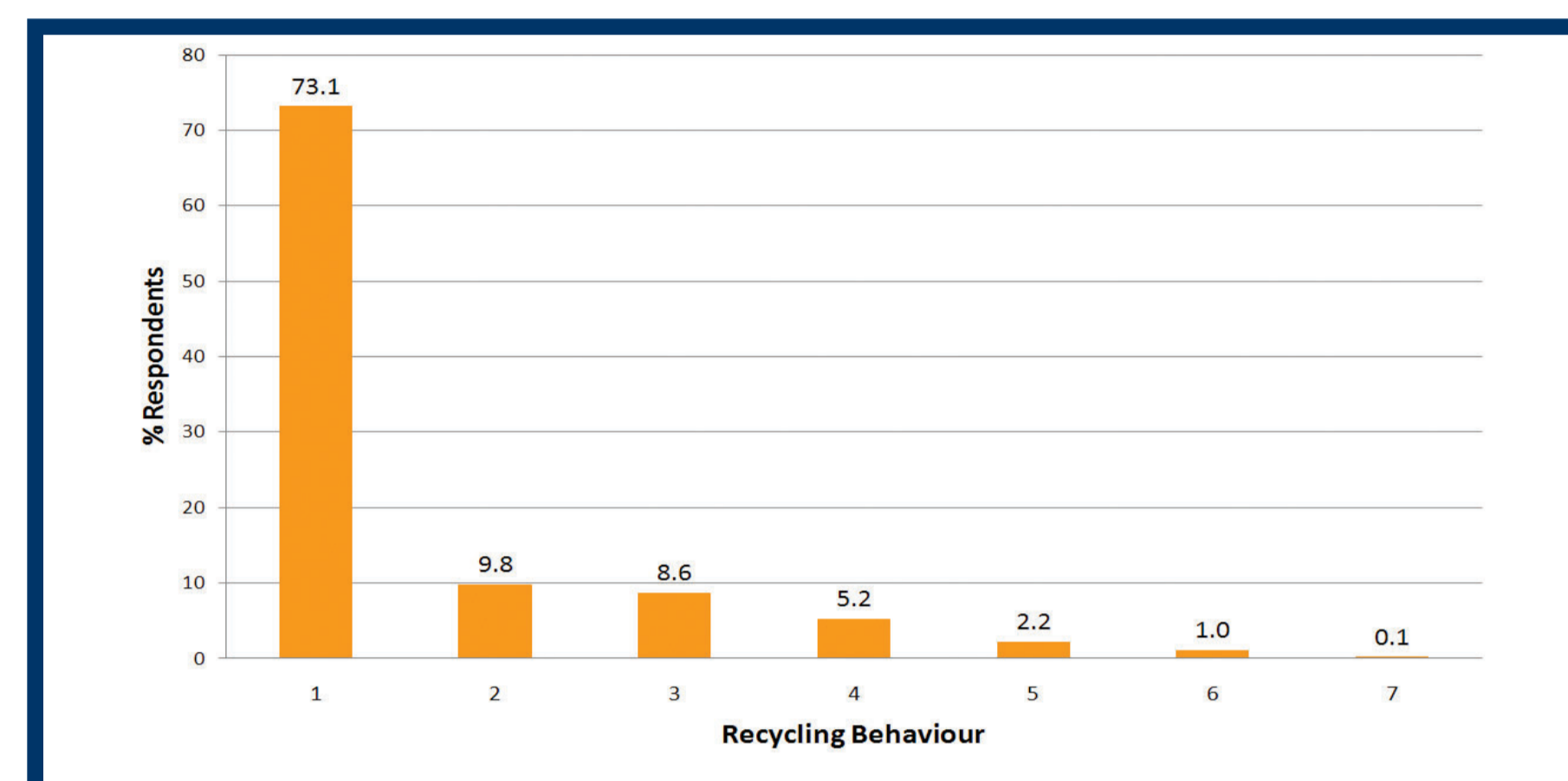


Figure 2: Self-reported recycling behaviour of the respondents, where 1 = no recycling behaviour (recycle nothing, recycle never and nobody takes responsibility for recycling in the household) and 7 = maximum possible recycling activity (always recycle everything that is recyclable and more than one person takes responsibility for recycling in the household)

Table 1: Descriptive statistics for the latent variables: mean scores ( $\bar{x}$ ) and standard deviation (SD)

Variable	$\bar{x}$	SD
Recycling behaviour construct	1.44	0.94
Intention to recycle	3.76	1.54
Attitude	3.86	1.34
Subjective norm	3.37	1.30
Perceived behavioural control	3.30	1.25

Where: 1 = none (most negative); 7 = best possible (most positive); and 4 = neutral midpoint

The five main reasons why people do not recycle (in order of the percentage of responses) are lack of space, lack of time, because it is dirty/untidy, lack of recycling knowledge, and inconvenient recycling facilities (Figure 3, Table 2).

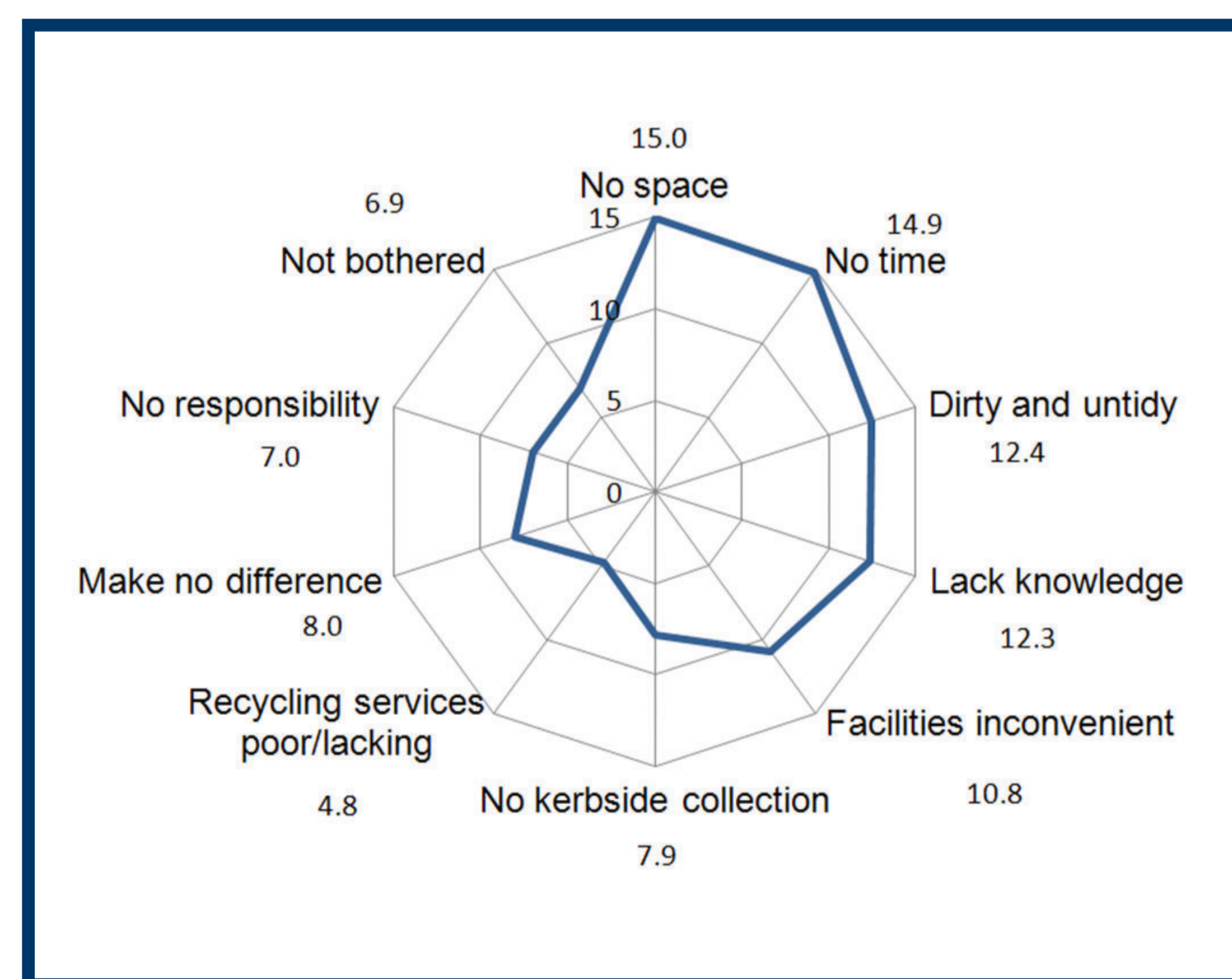


Figure 3: Perceived reasons why people do not recycle. The five main reasons are no space, no time, it is dirty and untidy, people lack the knowledge of what is recyclable and what not, and inconvenient facilities.

Table 2: Perceived reasons why people do not recycle: The ten options respondents could choose from; the percentage of responses for each of these items; and, the order of importance

Reasons why people do not recycle	% of Responses	Order of importance
Situational factors (household level)		
They lack space to keep the recyclables	15.0	1
They do not have the time	14.9	2
Keeping the materials until it is recycled is dirty and untidy	12.4	3
Knowledge		
They do not know what can and what cannot be recycled	12.3	4
Situational factors (recycling facilities)		
Recycling facilities are inconvenient	10.8	5
They do not have a kerbside collection service for recyclables	7.9	7
Recycling services are poor or does not exist	4.8	10
Psychological factors		
They think it will not make a difference whether they recycle or not	8.0	6
They are not responsible for recycling in their households	7.0	8
They cannot be bothered	6.9	9

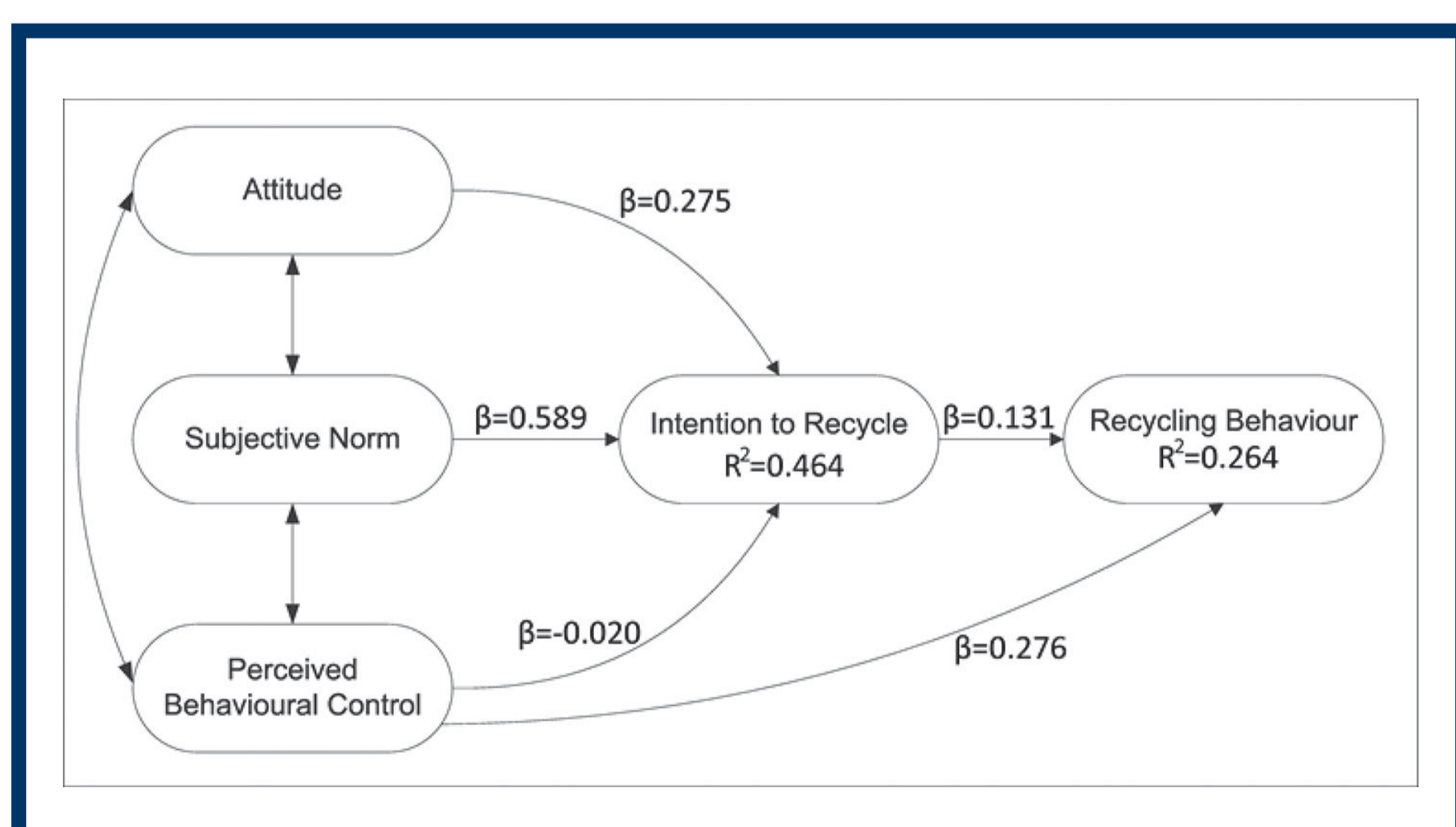


Figure 1: Path diagram of the Theory of Planned Behaviour showing regression coefficients ( $\beta$ ) and proportion of variation explained ( $R^2$  values) when fitted to the survey data ( $n=2004$ ). Diagram adapted after Ajzen and Madden (1986).



## DISCUSSION AND CONCLUSION

Social pressure is often relied on to change behaviour, which is confirmed by the strong effect of subjective norm on intention to recycle ( $\beta=0.589$ ;  $p<0.0001$ ). However, the findings suggest that in South Africa, social pressure to recycle is low. Given that only 3.3% of the sample is 'dedicated recyclers', very few 'mentors' exist to set a good example.

Several of the current barriers to recycling could be overcome by well operated recycling schemes. In particular, the household situational factors that came out as the most important reasons why people do not recycle are important to keep in mind in the design of recycling services. Recycling schemes that are designed to accommodate these factors, such as, a two-bag system, combined with a regular kerbside collection, have the most potential to increase recycling behaviour in South Africa's urban areas.

## RECOMMENDATIONS

1. Design recycling schemes according to household needs, a two-bag system combined with a regular kerbside collection, have the most potential to increase recycling behaviour.
2. Formulate communication strategies to address the knowledge gap that exists.
3. Continue research to understand the drivers of recycling behaviour and to clarify the reasons for non-recycling, and how motivations to recycle can be mobilised to positively change recycling behaviour in South Africa.

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