

# Faking it: social desirability response bias in self-report research

## AUTHOR

### Thea F van de Mortel

RN, M.HlthSc., FRCNA, FCN (NSW)  
Faculty of Health and Applied Sciences, Southern  
Cross University, Lismore, NSW, Australia.  
tvandemo@scu.edu.au

## KEY WORDS

socially desirable responding, validity, bias,  
questionnaire

## ABSTRACT

### Objective

The tendency for people to present a favourable image of themselves on questionnaires is called socially desirable responding (SDR). SDR confounds research results by creating false relationships or obscuring relationships between variables. Social desirability (SD) scales can be used to detect, minimise, and correct for SDR in order to improve the validity of questionnaire-based research. The aim of this review was to determine the proportion of health-related studies that used questionnaires and used SD scales and estimate the proportion that were potentially affected by SDR.

### Methods

Questionnaire-based research studies listed on CINAHL in 2004-2005 were reviewed. The proportion of studies that used an SD scale was calculated. The influence of SDR on study outcomes and the proportion of studies that used statistical methods to control for social desirability response bias are reported.

### Results

Fourteen thousand two hundred and seventy-five eligible studies were identified. Only 0.2% (31) used an SD scale. Of these, 43% found SDR influenced their results. A further 10% controlled for SDR bias when analysing the data. The outcomes in 45% of studies that used an SD scale were not influenced by SDR.

### Conclusions

While few studies used an SD scale to detect or control for SD bias, almost half of those that used an SD scale found SDR influenced their results.

### Recommendations

Researchers using questionnaires containing socially sensitive items should consider the impact of SDR on the validity of their research and use an SD scale to detect and control for SD bias.

## INTRODUCTION

Researchers using questionnaires and interviews rely on truthful responses from participants to draw meaningful conclusions. Socially desirable responding is the tendency for participants to present a favourable image of themselves (Johnson and Fendrich 2005). The participant may believe the information they report (self-deception), or may 'fake good' to conform to socially acceptable values, avoid criticism, or gain social approval (King and Brunner 2000 p.81; Huang et al 1998). Socially desirable responding is most likely to occur in responses to socially sensitive questions (King and Brunner 2000). For example, Adams et al (2005) used labelled water measurements, self-report, and activity monitors to determine physical activity levels and found participants with a high SD score were significantly more likely to over-estimate their physical activity levels. Similarly, SDR bias has been detected in research on many topics including dietary intake (Tooze et al 2004; Scagliusi et al 2003), domestic violence (Babcock et al 2004), and sexual practices (DiFranceis et al 1998).

Social desirability response bias affects the validity of a questionnaire (Huang et al 1998). An instrument is valid if it accurately measures what it aims to measure (Beanland et al 1999). According to Nederhof (1985) between 10% and 75% of the variance in participants' responses can be explained by SDR which can confound relationships among the variables of interest by suppressing or obscuring relationships among variables or producing artificial relationships between variables (King and Brunner 2000 p.81). Health related research often covers socially sensitive topics, therefore researchers must "identify situations in which data may be systematically biased toward respondents' perceptions of what is socially acceptable, to determine the extent to which this represents contamination of the data, and to implement the most appropriate methods of control" (King and Brunner 2000 p.80).

Psychologists have developed and validated scales to detect SDR. The most widely used example is the

33-item Marlowe-Crowne Social Desirability Scale (MCSDS) in which the participant answers true or false to a set of socially desirable but improbable statements (King and Brunner 2000; Crown and Marlowe 1960). For example, "I have never deliberately said something that hurt someone's feelings" (Crown and Marlowe 1960 p.351). Short forms of the scale with acceptable reliability ( $r = 0.74-0.82$ ) that correlate ( $r = 0.88-0.91$ ) with the original scale have also been developed (Loo and Thorpe 2000; Fischer and Fick 1993; Ballard 1992; Zook and Sipps 1985; Silverstein 1983; Reynolds 1982; Strahan and Gerbasi 1972). People who score high on an SD scale have a high need for social approval and are more likely to portray themselves positively; the converse is true of low scorers (King and Brunner 2000). According to Edens et al (2001 p.249) there is no "categorical standard for differentiating between socially desirable and non-socially desirable responding", however they designated a high scorer on the standard MCSDS as someone who scored 1.5 standard deviations or more above the mean for the sample (which in their data was a score above 24). Andrews and Meyer (2003) suggest that the mean score on the 33 item MCSDS for someone 'faking good' was 24, whereas it was 15 when participants were being honest.

The aim of this review was to examine how widely SD scales are used in nursing or health related questionnaire based research and to determine the impact of SDR on research outcomes.

## METHOD

The CINAHL database was searched using the search terms questionnaire/s, socially desirable responding, social desirability scale, and Marlowe-Crowne. The search was limited to research studies published in English during 2004 and 2005. The number of research studies that used a questionnaire in 2004 and 2005 and the number and percentage of those studies that reported using an SD scale was determined. Each of the studies that used an SD scale was examined to determine what effect, if any, SDR had on the study outcomes.

## FINDINGS

During 2004 and 2005, 14,275 questionnaire-based research studies were listed on CINAHL. Of these, 31 (0.2%) used an SD scale to examine the effect of SDR on research outcomes (table 1).

Of the 31 studies that used an SD scale, 14 (45%) found SDR did not significantly influence their results. Thirteen studies (43%) found that SDR influenced their results (Adams et al 2005; Black et al 2005; Blair and Coyle 2005; Cossette et al 2005; Henning et al 2005; Mahalik et al 2005; Matthews et al 2005; Todaro et al 2005; Bell et al 2004b; McGilloway and Connelly 2004; Straus 2004; Tooze et al 2004;

Yazbeck et al 2004). Three of those 13 studies (10% of the 31 studies using an SD scale) controlled for the influence of SDR in their statistical analyses (Blair and Coyle 2005; Todaro et al 2005; Straus 2004). A further two studies (6.5%) did not report the influence of SDR on their data, but stated they had controlled for SDR using statistical tests during data analysis (Friedman et al 2004; Tejada 2004). One study used the MCSDS to test for defensiveness rather than SDR (Consedine et al 2004) and one study reported insufficient information to draw any meaningful conclusions about SDR (Bell et al 2004a).

**Table 1: Research studies reported on CINAHL in 2004 and 2005 that used questionnaires and an SD scale**

Author (year)	Research Topic	Method	Effect of SDR on outcomes
1. Puhl et al (2005)	Reducing bias against obese people	Participants reported attitudes toward obese people prior to and after exposure to false (manufactured) positive and negative feedback on the attitudes of others toward obese people. Completed MCSDS.	SDR did not influence variables.
2. Reynolds and Magnan (2005)	Nursing attitudes and beliefs toward human sexuality	The instrument was piloted with nurses working in oncology and HIV/AIDS wards. 10-item MCSDS completed.	SDR did not influence variables.
3. Black et al (2005)	Incarceration and veterans of the first Gulf War	Personnel were interviewed by phone about their history of incarceration, and medical/psychiatric conditions. The X1 short form of MCSDS completed.	Authors reported SDR may have been an issue, but did not report scores on the SD scale.
4. Cossette et al (2005)	Development and testing of the Caring Nurse-Patient Interactions Scale	Student nurses rated the importance of each attitude on the scale, how competent they felt to adopt attitude and how they felt about applying attitudes in clinical practice. MCSDS Form C was completed.	SD scores significantly influenced scores on the competence and application aspects of the questionnaire.
5. Matthews et al (2005)	Accuracy and certainty of self report for colorectal cancer screening among ambulatory patients	Participants were interviewed to assess the accuracy of screening recall compared to medical data. 10-item MCSDS was completed.	SDR was more common in some ethnic groups, but overall participants' reports were reasonably accurate.
6. Hurley et al (2005)	Psychosocial influences on dietary patterns during pregnancy	The dietary intake of pregnant women was assessed using self report. Participants completed MCSDS and instruments measuring psychosocial state.	SDR did not have a significant influence on reporting of food choices.

**Table 1: Research studies reported on CINAHL in 2004 and 2005 that used questionnaires and an SD scale continued...**

7. Blair and Coyle (2005)	Factors influencing the multicultural competence of entry level certified therapeutic recreation specialists	Cross-sectional survey research. Instruments included the Multicultural Counselling Inventory (MCI) and MCSDS short form B.	There were significant correlations between MCSDS score and participants' ratings of their multicultural competency on the subscales of the MCI. SDR was controlled for during statistical analysis.
8. Adams et al (2005)	The effect of social desirability and social approval on self report of physical activity	Participants completed doubly labelled water measurements (which is a physiological measurement technique that can provide an estimate of activity) and wore an activity monitor. They completed an SD scale and multiple activity recalls (self administered and interviewer administered).	High SD scores were associated with over reporting of physical activity.
9. Henning et al (2005)	Factors influencing minimisation, blame and denial among domestic violence offenders	Participants convicted of partner abuse completed scales assessing attributions of blame, denial and minimisation and an SD scale.	Domestic violence offenders when being evaluated tended to be influenced by SDR.
10. Todaro et al (2005)	The influence of knowledge about organ scarcity and transplant waiting periods on psychological distress	Participants were randomly assigned to two groups: mention or no mention of organ scarcity and transplant demand and acted out a scenario. Subjects filled out questionnaires pre and post experiment and completed anxiety and depression scales and the MCSDS.	SD scores significantly influenced scores on anxiety and depression scales. Statistical analyses used to control for SDR; subsequently some outcomes were no longer statistically significant.
11. Harrison et al (2005)	Religiosity and pain in patients with sickle cell disease	Subjects with sickle cell disease completed the Longitudinal Exploration of Psychosocial Factors in Sickle Cell Disease. Pain, religiosity, and psychological distress were measured. MCSDS XX form completed.	SDR did not significantly influence the results.
12. Taubman -Ben-Ari and Findler (2005)	Effects of mortality salience on willingness to engage in health promoting behaviour	Participants completed a self-esteem scale, the MCSDS, and a scale that examined their willingness to engage in health-promoting behaviour.	SDR did not influence the results.
13. Mahalik et al (2005)	Variables predicting controlling behaviour in men who batter	Men attending a batterers' program completed various instruments on behaviour, and the MCSDS.	SD scores were significantly inversely related to self reported controlling behaviour.
14. Tejada (2004)	Correlates of hate ideation against gay men and lesbians	Participants completed the Sex-Role Egalitarianism Scale, the Rosenberg Self-Esteem Scale and the MCSDS.	Author controlled for response bias using stepwise hierarchical regression before examining relationships between variables of interest, so SDR scores were not reported.

**Table 1: Research studies reported on CINAHL in 2004 and 2005 that used questionnaires and an SD scale continued...**

15. Friedman et al (2004)	The influence of substance abuse and dependence on depression, self image and suicide attempts	Participants were interviewed regarding frequency of alcohol and illicit drug use and completed instruments measuring depression, and a 15-item subset of the MCSDS.	Scores on the SD scale were used to control for SDR when carrying out statistical analyses.
16. Taylor et al (2004)	Validation of the Detroit Area Study Discrimination Scale (DAS-DQ) in African Americans	African American adults were surveyed using the DAS-DQ. Daily experiences of psychological demand were measured using ecological momentary assessment. MCSDS completed.	SDR did not have a significant influence on scores on research scales.
17. Straus (2004)	Prevalence of violence toward dating partners by university students	Students were surveyed on self-reported violence against dating partners. Completed 13-item MCSDS.	SDR had a substantial effect on reported violence toward dating partners. The authors used the scale to control for SDR when analysing data.
18. McParland et al (2004)	The effectiveness of problem based learning compared to traditional teaching in undergraduate psychiatry	Cohorts taught using traditional and problem-based learning were compared. Students completed the Study Process Questionnaire and Attitudes to Psychiatry scale, various assessment items and MCSDS Form C.	SDR did not influence research outcomes.
19. Ojala and Nesdale (2004)	The effects of group norms on attitudes toward bullying	Children read a story about the behaviour of an in-group and an out-group. Variables were manipulated in various versions of the story. Participants completed MCSDS Form C and a questionnaire on their attitudes towards the groups.	SDR did not significantly influence the results.
20. Bornstein et al (2004)	Vocabulary competence in first and second born siblings of the same chronological age	Vocabulary competence was compared in first and second-born children using maternal report, child speech and experimenter assessment. MCSDS completed.	SDR did not significantly influence outcomes.
21. Campbell et al (2004)	Relationship of ethnicity, gender, and ambulatory blood pressure to pain sensitivity	Participants underwent arterial blood pressure monitoring. Pain sensitivity was assessed using a verbal rating scale. Personality dimensions were assessed via various scales. MCSDS completed.	SDR did not significantly influence outcomes.
22. Yazbeck et al (2004)	Factors that influence attitudes toward people with an intellectual disability	A questionnaire pertaining to attitudes to mentally retarded persons, and 10-item MCSDS were administered to disability workers, university students and the general population.	Participants with high SD scores had less positive attitudes toward people with disabilities.
23. Knauper et al (2004)	Development and testing of a scale to examine compensatory health beliefs	Participants completed MCSDS and Compensatory Health Beliefs scale in order to test the reliability and validity of the latter.	SDR did not influence responses.

**Table 1: Research studies reported on CINAHL in 2004 and 2005 that used questionnaires and an SD scale continued...**

24. Cox et al (2004)	Patterns of anger diversion in women	Participants completed various instruments on anger expression and MCSDS.	SDR did not influence responses.
25. McGilloway and Connelly (2004)	A police liaison scheme for mentally disordered offenders	Mental health status, drug and alcohol abuse and risk-related behaviour were assessed using various mental health instruments. MCSDS Form C completed.	Weak statistically significant negative correlations between SD scores and scores on self report scales indicated under reporting of alcohol and/or drug use and psychiatric morbidity.
26. Tooze et al (2004)	Psychosocial predictors of energy under-reporting	Participants completed questionnaires on diet, exercise, body image, the Fear of Negative Evaluation scale and MCSDS. Participants' activity levels were checked using doubly labelled water.	Higher SD scores were significantly associated with underreporting of dietary intake. Under reporting more marked when data collected by interview compared to questionnaire.
27. Bell et al (2004a)	The effects of homeopathic and placebo treatment on fibromyalgia	Double-blinded homeopathic versus placebo treatment followed by crossover phase. Participants completed a set of scales and MCSDS Form C.	The authors reported SD scores but did not interpret the effect on outcomes.
28. Lewandowski (2004)	The influence of guided imagery on chronic pain	Participants with chronic pain were randomised to experimental and control groups. Intervention included guided imagery. Measures of pain and power were obtained at baseline and various times. MCSDS completed.	SDR did not significantly influence responses.
29. Bell et al (2004b)	Associations between homeopaths' ratings of patients' 'vital force' and patients' self rating on bio-psycho-social-spiritual wellbeing scales	Homeopaths rated patients' vital force'; homeopaths and medical doctors rated severity of patient's illness. Patients completed scales on bio-psycho-social-spiritual wellbeing and MCSDS Form C.	SD scores correlated weakly with homeopaths' ratings of vital force, but not with homeopaths' or medical doctors' ratings of severity of illness.
30. Consedine et al (2004)	The contribution of emotional characteristics to breast cancer screening	Women were interviewed regarding breast cancer screening and completed various scales that measured defensiveness, anxiety, cancer worry and embarrassment.	MCSDS was used to measure defensiveness rather than SDR.
31. Strike et al (2004)	Measuring self awareness, perceived knowledge and skills in relation to mental health professionals' disability competence	Health professionals working with clients with a disability completed the Counselling Clients with Disabilities Survey and an SD scale.	SDR did not influence the results.

## DISCUSSION

Only a small proportion of studies using questionnaires during 2004-2005 used a scale to detect SDR. The review demonstrates that almost half the studies that used an SD scale found that SDR influenced their outcomes. Only five studies (16%) used currently available statistical methods to correct for SDR.

These data suggest that a proportion of nursing and allied health research papers may report data that are influenced by SDR which in turn could influence the validity of their conclusions.

The likelihood of SDR occurring with a particular questionnaire depends on the social value placed on the scale items. For example, scale items that

examine nursing practices such as hand washing frequency or attitudes toward patients may be quite susceptible to SDR because there are community and professional expectations about behaviour that participants may want to conform to, even when their responses are anonymous. This review demonstrated that participants' responses were more likely to be influenced by SDR when they were being asked to self report on their competence (Blair and Coyle 2005; Cossette et al 2005), and when they were being asked to self report on socially sensitive topics such as: admissions of domestic violence (Henning et al 2005); history of incarceration and psychiatric conditions (Black et al 2005); physical activity levels (Adams et al 2005); levels of psychological distress (Todaro et al 2005); controlling behaviour (Mahalik et al 2005); violence toward dating partners (Straus 2004); levels of drug and alcohol use (McGilloway and Connelly 2004); and dietary intake (Tooze et al 2004). Studies on topics such as reporting of pain and religiosity; the effects of group norms on participants' attitudes toward particular groups; experiences of discrimination; the effectiveness of problem based learning; and compensatory health beliefs did not elicit statistically significant SDR (table 1).

Social desirability scales can be used when tools are being developed to highlight problems with the wording of items in the scale which would enable the items with a high social desirability value to be modified (King and Brunner 2000; Nederhof 1985). Where possible, statements with a neutral SD value should be used because they are less likely to elicit biased responses (Nederhof 1985). However the scale can also be incorporated into the final questionnaire to help identify and control for SDR.

The strategies used to deal with SDR identified during data analysis include:

- rejecting the data of subjects with high SD scores;
- registering the impact of SDR but not controlling for it; and
- correcting the data of subjects with high SD scale scores (Nederhof 1985 p.268).

The final option is the most rigorous method of dealing with SDR identified during data analysis (Nederhof 1985) and can involve using partial correlations or hierarchical stepwise regression analysis (King and Brunner 2000). For example, the SPSS statistical software package enables researchers to explore the relationship between two variables of interest while statistically controlling for SDR using partial correlations (Pallant 2005).

### LIMITATIONS

This review was limited to two years of published research. Using a wider time frame may have resulted in different outcomes. The search terms may not have been sufficiently wide to capture all relevant studies. This review only examined the use of SD scales in research using questionnaires. A wider review should also examine the use of SD scales in interview based research as there is an even stronger tendency for participants to modify their responses when they are not anonymous (Huang et al 1998).

### CONCLUSION

While few questionnaire based studies examined in the current review used an SD scale to detect SD bias, almost half those that did found SDR influenced the results. This finding suggests that a proportion of conclusions reported in nursing and allied health journals obtained using questionnaires could be flawed.

### RECOMMENDATIONS

Researchers using questionnaires should consider the impact of SD bias on the validity of their results and consider using an SD scale when they develop the instrument to minimise items that encourage SDR, or when administering questionnaires and conducting interviews to detect and control for SD bias during data analysis.

### REFERENCES

- Adams, S., Matthews, C., Ebbeling, C., Moore, C., Cunningham, J., Fulton J. and Herbert J. 2005. The effect of social desirability and social approval on self-reports of physical activity. *American Journal of Epidemiology*, 161(4):389-398.

- Andrews, P. and Meyer, R. 2003. Marlow-Crowne Social Desirability Scale and short form C: forensic norms. *Journal of Clinical Psychology*, 59(4):483-492.
- Babcock, J., Costa, D., Green, C. and Eckhardt, C. 2004. What situations induce intimate partner violence? A reliability and validity study of the Proximal Antecedents to Violent Episodes (PAVE) scale. *Journal of Family Psychology*, 18(3):433-442.
- Ballard, R. 1992. Short forms of the Marlowe-Crowne social desirability scale. *Psychological Reports*, 71(3 Pt2):1155-1160.
- Beanland, C., Schneider, Z., LoBiondo-Wood, G. and Haber, J. 1999. *Nursing research: methods, critical appraisal and utilisation*. Harcourt: Sydney, Australia.
- Bell, I., Lewis, D., Lewis, S., Brooks, A., Schwartz, G. and Baldwin, C. 2004a. Strength of vital force in classical homeopathy: bio-psycho-social-spiritual correlates within a complex systems context. *Journal of Alternative and Complementary Medicine*, 10(1):123-131.
- Bell, I., Lewis, D., Brooks, A., Schwartz, G., Lewis, S. Caspi, O., Cunningham, V. and Baldwin, C. 2004b. Individual differences in response to randomly assigned active individualised homeopathic and placebo treatment in fibromyalgia: implications of a double-blinded optional crossover design. *Journal of Alternative and Complementary Medicine*, 10(2):269-283.
- Black, D., Carney, C., Peloso, P., Woolson, R., Letuchy, E. and Doebbeling, B. 2005. Incarceration and veterans of the first Gulf War. *Military Medicine*, 170(7):612-618.
- Blair, D. and Coyle, C. 2005. An examination of multicultural competencies of entry level certified therapeutic recreation specialists. *Therapeutic Recreation Journal*, 39(2):139-157.
- Bornstein, M., Leach, D. and Haynes, O. 2004. Vocabulary competence in first and second-born siblings of the same chronological age. *Journal of Child Language*, 31(4):855-873.
- Campbell, T., Jughes, J., Girdler, S., Maixner, W. and Sherwood, A. 2004. Relationship of ethnicity, gender, and ambulatory blood pressure to pain sensitivity: effects of individualised pain rating scales. *Journal of Pain*, 5(3):183-191.
- Consedine, N., Mangai, C. and Neugut, A.I. 2004. The contribution of emotional characteristics to breast cancer screening among women from six ethnic groups. *Preventive Medicine*, 38(1):64-77.
- Cossette, S., Cara, C., Ricard, N. and Pepin, J. 2005. Assessing nurse-patient interactions from a caring perspective: report of the development and preliminary psychometric testing of the Caring Nurse-Patient Interactions Scale. *International Journal of Nursing Studies*, 42(6):673-686.
- Cox, D., van Velsor, P. and Hulgas, J. 2004. Who me? Angry? Patterns of anger diversion in women. *Health Care for Women International*, 25(9):872-893.
- Crowne, D. and Marlowe, D. 1960. A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, 24(4):349-354.
- DiFranceisco, W., McAuliffe, T. and Sikkema, K. 1998. Influences of survey instrument format and social desirability on the reliability of self-reported high risk sexual behaviour. *AIDS and Behaviour*, 2(4):329-337.
- Edens, J., Buffington, J., Tominic, T., and Riley, B. 2001. Effects of positive impression management on the Psychopathic Personality Inventory. *Law and Human Behaviour*, 25(3):235-256.
- Fischer, D. and Fick, C. 1993. Measuring social desirability: short forms of the Marlowe-Crowne Social Desirability Scale. *Education and Psychological Measurement*, 53(2):417-423.
- Friedman, A., Terras, A., Zhu, W. and McCallum, J. 2004. Depression, negative self-image and suicidal attempts as effects of substance use and substance dependence. *Journal of Addictive Diseases*, 23(4):55-71.
- Harrison, M., Edwards, C., Koenig, H., Bosworth, H., Decastro, L. and Wood, M. 2005. Religiosity/spirituality and pain in patients with sickle cell disease. *Journal of Nervous and Mental Disease*, 193(4):250-257.
- Henning, K., Jones A. and Holdford R. 2005. "I didn't do it, but if I did I had a good reason": minimisation, denial, and attributions of blame among male and female domestic violence offenders. *Journal of Family Violence*, 20(3):131-139.
- Huang, C., Liao, H. and Chang, S. 1998. Social desirability and the Clinical Self-Report Inventory: methodological reconsideration. *Journal of Clinical Psychology*, 54(4):517-528.
- Hurley, K., Caulfield, L., Sacco, L., Costigan, K. and Dipietro, J. 2005. Psychosocial influences in dietary patterns during pregnancy. *Journal of the American Dietetic Association*, 105(6):963-966.
- Johnson, T. and Fendrich, M. 2002. A validation of the Crowne-Marlowe Social Desirability Scale. Available from: <http://www.srl.uic.edu/publist/Conference/crownemarlowe.pdf> (accessed 10 April 2005).
- King, M. and Bruner, G. 2000. Social desirability bias: a neglected aspect of validity testing. *Psychology and Marketing*, 17(2):79-103.
- Knauper, B., Rabiau, M., Cohen, O. and Patriciu, N. 2004. Compensatory health beliefs: scale development and psychometric properties. *Psychology and Health*, 19(5):607-624.
- Lewandowski, W. 2004. Patterning of pain and power with guided imagery. *Nursing Science Quarterly*, 17(3):233-241.
- Loo, R. and Thorpe, K. 2000. Confirmatory factor analyses of the full and short versions of the Marlowe-Crowne Social Desirability Scale. *Journal of Social Psychology*, 140(5):628-635.
- McGillaway, S. and Connelly, M. 2004. Mental illness in the UK criminal justice system: a police liaison scheme for mentally disordered offenders in Belfast. *Journal of Mental Health*, 13(3):263-275.
- McParland, M., Noble, L. and Livingstone, G. 2004. The effectiveness of problem-based learning compared to traditional teaching in undergraduate psychiatry. *Medical Education*, 38(8):859-867.
- Mahalik, J., Aldarondo, E., Gilbert-Gokhale, S. and Shore, E. 2005. The role of insecure attachment and gender role stress in predicting controlling behaviour in men who batter. *Journal of Interpersonal Violence*, 20(5):617-631.
- Matthews, V., Nattinger, A. and Anderson, R. 2005. Accuracy and certainty of self-report for colorectal cancer screening among ambulatory patients. *Psychology Health Medicine*, 10(1):1-15.
- Nederhof, A. 1985. Methods of coping with social desirability bias: a review. *European Journal of Social Psychology*, 15(3):263-280.
- Ojala, K. and Nesdale, D. 2004. Bullying and social identity: the effects of group norms and distinctiveness threat on attitudes towards bullying. *British Journal of Developmental Psychology*, 22(1):19-35.
- Pallant, J. 2005. *SPSS survival manual (2<sup>nd</sup> edn)*. McGraw Hill Education: Maidenhead, Berkshire, UK.
- Puhl, R., Schwartz, M. and Brownell, K. 2005. Impact of perceived consensus on stereotypes about obese people: a new approach for reducing bias. *Health Psychology*, 24(5):517-525.



- Reynolds, K. and Magnan, M. 2005. Nursing attitudes and beliefs toward human sexuality: collaborative research promoting evidence-based practice. *Clinical Nurse Specialist*, 19(5):255-259.
- Reynolds, W. 1982. Development of reliable and valid short forms of the Marlowe-Crowne social desirability scale. *Journal of Clinical Psychology*, 38(1):119-125.
- Scagliusi, F., Polacow, V., Artiolo, G., Benatti, F. and Lancha, A. 2003. Selective underreporting of energy intake in women: magnitude, determinants, and effect of training. *Journal of the American Dietetic Association*, 103(10):1306-1313.
- Silverstein, A.B. 1983. Validity of random short forms II: The Marlowe-Crowne Social Desirability Scale. *Journal of Clinical Psychology*, 39(4):582-584.
- Strahan, R. and Gerbasi, K. 1972. Short, homogenous versions of the Marlowe-Crowne social desirability scale. *Journal of Clinical Psychology*, 28(2):191-193.
- Straus, M. 2004. Prevalence of violence against dating partners by male and female university students worldwide. *Violence Against Women*, 10(7):790-811.
- Strike D., Skovholt T. and Hummel T. 2004. Mental health professionals' disability competence: measuring self-awareness, perceived knowledge, and perceived skills. *Rehabilitation Psychology*, 49(4):321-327.
- Taubman-Ben-Ari, O. and Findler, L. 2005. Proximal and distal effects of mortality salience on willingness to engage in health promoting behaviour along the life span. *Psychology and Health*, 20(3):308-313.
- Taylor, T., Kamark, T. and Shiffman, S. 2004. Validation of the Detroit Area Study Discrimination Scale in a community sample of older African American adults: the Pittsburgh Healthy Heart Project. *International Journal of Behavioural Medicine*, 11(2):88-94.
- Tejeda, M. 2004. Egalitarianism and self-esteem as correlates of hate ideation against gay men and lesbians. *Journal of Multicultural Nursing and Health*, 10(1):42-50.
- Todaro, J., Sears, S., Rodriguez, J. and Musto, K. 2005. The influence of knowledge related to organ scarcity and transplant waiting periods on psychological distress. *Progress in Transplantation*, 15(1):78-85.
- Tooze, J., Sabar, A., Thompson, F., Troiano, R., Schatzkin, A. and Kipnis, V. 2004. Psychosocial predictors of energy underreporting in a large doubly labelled water study. *American Journal of Clinical Nutrition*, 79(5):795-804.
- Yazbeck, M., McVilly, K. and Permenter, T. 2004. Attitudes toward people with intellectual disabilities: an Australian perspective. *Journal of Disability Policy Studies*, 15(2):97-111.
- Zook, A. and Sipps, G. 1985. Cross-validation of a short form of the Marlowe-Crowne Social Desirability Scale. *Journal of Clinical Psychology*, 41(2):236-238.