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Abstract

Objective Although many postgraduate psychology programs address students' mental health, there are compelling indications that earlier, undergraduate, interventions may be optimal. We investigated specific attitudes that predict students' intentions to seek treatment for psychological distress to inform targeted interventions. **Method** Psychology students (N = 289; mean age = 19.75 years) were surveyed about attitudes and intentions to seek treatment for stress, anxiety, or depression. **Results** Less than one quarter of students reported that they would be likely to seek treatment should they develop psychological distress. Attitudes that predicted help-seeking intentions related to recognition of symptoms and the benefits of professional help, and openness to treatment for emotional problems. **Conclusions** The current study identified specific attitudes which predict help-seeking intentions in psychology students. These attitudes could be strengthened in undergraduate educational interventions promoting well-being and appropriate treatment uptake among psychology students.

Keywords

which, predict, psychology, specific, students, attitudes, intentions, seek, help, psychological, distress

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Abstract

Objective: Although many postgraduate psychology programs address students' mental health, there are compelling indications that earlier, undergraduate interventions may be optimal. We investigated specific attitudes which predict students' intentions to seek treatment for psychological distress, to inform targeted interventions.

Method: Psychology students (N =289; mean age=19.75 years) were surveyed about attitudes and intentions to seek treatment for stress, anxiety or depression.

Results: Less than one quarter of students reported that they would be likely to seek treatment should they develop psychological distress. Attitudes which predicted help-seeking intentions related to recognition of symptoms and the benefits of professional help, and openness to treatment for emotional problems.

Conclusions: The current study identified specific attitudes which could be strengthened in undergraduate educational interventions promoting wellbeing and appropriate treatment uptake among psychology students.

Introduction

Undergraduate psychology students show elevated psychological distress compared to the general population (e.g. Leahy et al., 2010; Pierceall & Keim, 2007). A recent study, for example, reported that 75% of students were moderately, and 12% were highly stressed (Pierceall & Keim, 2007). Despite effective treatments being available, most undergraduate psychology students strongly prefer to seek informal help or turn to maladaptive coping strategies rather than seek professional help, with coping strategies including talking to family and friends (77%), drinking alcohol (39%), using illegal drugs (15%) and doing nothing (5.7%) all being preferred above talking to a professional (5.2%; Pierceall & Keim, 2007).

Across university students in general, similarly high levels of psychological distress (Bayram & Bilgel, 2008; Bradley, & Audin, 2006; Cooke, Bewick, Barkham, Ryan, Shochet, & Stallman, 2010; Stallman, 2008, 2011) and maladaptive coping strategies (ACHA, 2007; Chiauzzi, Brevard, Thurn, Decembrele, & Lord, 2008), indicate the need for broad interventions; however, generic interventions and counseling services achieve very low uptakes (Stallman, 2011). Identified barriers include denying the existence of problems, perceiving problems as self-limiting, prior negative experiences of help-seeking and beliefs that treatment would be unhelpful (Stallman, 2011), stigma (Eisenberg et al., 2009) and general attitudes to help-seeking (Reavley & Jorm, 2010). Prevention and early intervention for mental health problems in higher education students are considered vital to minimize long term impairment (Stallman, 2011; Reavley, 2010), and declines in physical and mental health associated with stress and maladaptive coping strategies such as substance abuse (ACHA, 2007). Alternative strategies to engage students in mental health care are therefore indicated.

The case of psychology may represent unrealized opportunities to reach a substantial percentage of undergraduate students through integrated course material on prevention and

early intervention for mental health problems. The subject matter is particularly relevant to psychology courses and many undergraduate psychology students already expect that psychology courses should help them to grow in self awareness, cope with stressors, understand themselves, and help others (Gervasio, Wendorf, & Yoder, 2010; Strongman, 2006). Interestingly, taking psychology classes does not appear to predict positive attitudes to seeking mental health care for mental health problems, whereas prior knowledge and reading about counseling does (Goh et al., 2007). The varied extent to which clinical or counseling aspects of psychology are covered in undergraduate courses means that psychology students may lack knowledge about the nature of psychological distress and the benefits of professional mental health care (Goh et al., 2007).

Although a strong case has been made for addressing wellbeing of students in postgraduate psychology training programs (Dearing et al., 2005; Shapiro, Brown, & Biegel, 2007; Smith & Moss, 2009), there are several indications that earlier interventions to promote student well-being and help-seeking would be optimal for prevention and could form a relevant and beneficial part of undergraduate psychology degrees. The peak onset of mental disorders occurs before age 24 years (Kessler et al., 2005), coinciding with the time most psychology students are undergraduates. Maladaptive coping strategies also begin early in undergraduate stages of training, as do “corridor consultations” and other informal help-seeking, considered inappropriate in health care professionals and inconsistent with professional development guidelines (Brimstone et al., 2007). Given that a sizeable proportion of psychology students will become practicing psychologists, and most psychologists begin as psychology students, it is a concern that such habits may already be entrenched during undergraduate education (Brimstone et al., 2007). Attitude strength is more responsive to change among those aged 18-25 years than in other age groups (Visser & Kronsnick, 1998), and professionals who are introduced to concepts of self-care and personal

therapy early in their training are more likely to engage in such activities throughout their careers (Gilroy, Carroll, & Murra, 2002; Pope & Tabachnick, 1994). It is during this developmental period when promoting self-care and the use of professional psychological help will potentially have the strongest impact on psychology students' future help-seeking behaviors and mental health. Existing research indicates that a large proportion of undergraduate psychology students desire such training (Pierceall & Keim, 2007).

The case for strategies to promote personal mental health care for psychology professionals has been well articulated (Cushway, 1992; Dearing, Maddux, & Tangney, 2005; Shapiro, Brown, & Biegel, 2007; Smith & Moss, 2009), due to “occupational hazards” (Norcross, Guy & Laidig, 2007), including emotionally draining clinical work (O'Connor, 2001; Smith & Moss, 2009), negative client behaviors (Stevanovic & Rupert, 2004), and vicarious traumatization, which increase the likelihood of job-related distress (Smith & Moss, 2009). Psychological distress may impair professional functioning and result in substandard provision of care to clients (Gilroy, Carroll & Murra, 2002; Sherman & Thelen 1998; Smith & Moss, 2009). Professional mental health care may prevent and alleviate psychological distress in psychology trainees (Coster & Schwebel, 1997; Guy, 2000; Norcross, 2005; Schwebel & Coster, 1998), benefiting the profession and the public. Research indicates that favorable attitudes towards seeking professional psychological help are the strongest predictors of help-seeking behavior in graduate-level clinical and counseling psychology students, and that positive faculty attitudes are related to positive student attitudes towards psychotherapy (Dearing et al., 2005). Despite generally positive attitudes of trainee psychologists to seeking professional mental health care (Norcross & Guy, 2005), additional barriers arise in more advanced students and professionals, including perceived loss of status (Barnett & Hillard, 2001), fears of being perceived as incompetent (O'Connor, 2001; Smith

& Moss, 2009), concerns about confidentiality (Mahoney, 1997), and discomfort seeking therapy from an intimate community of colleagues (Smith & Moss, 2009).

The literature, therefore, indicates the importance of facilitating mental health help-seeking among undergraduate psychology students, as well as graduate students and psychologists. Beginning during undergraduate stages of education may confer the additional benefits associated with prevention and early intervention for mental health problems (Reavley & Jorm, 2010), and help students achieve their potential, regardless of their ultimate vocation.

The mental health help-seeking literature indicates that intentions and behavior are generally more highly correlated than attitudes and behavior (Wilson, Deane, Ciarrochi, & Rickwood, 2005). Understanding which attitudes have the strongest impact on psychology students' intentions to seek help for psychological distress may help to determine attitudinal targets for education which encourages early use of appropriate mental health care. Previous studies indicate that undergraduate psychology students' general attitudes predict intentions towards seeking professional help in the event of psychological distress (see Fischer & Farina, 1995; Vogel, Wade & Hackler, 2008; Vogel, Wade, Wester, Larson & Hackler, 2007). Fischer and Farina (1995), for example, reported moderate correlations between positive attitudes to mental health treatment (mean score in the Attitudes Towards Seeking Professional Psychological Help Scale Short Form- ATSPPHS-SF) and help-seeking behavior in a sample of undergraduate psychology students. The ATSPPHS-SF was developed from a 29 item scale, and retains 10 items which were proposed to reflect a uni-dimensional measure of treatment attitudes. Recent research, however, suggests that the ATSPPHS-SF may not represent a uni-demensional measure of attitudes (Elhai, Schweinle, & Anderson, 2008), suggesting the utility of investigating specific attitudes within the scale as predictors of help-seeking intentions.

Little is known about the specific attitudes that predict psychology students' intentions to seek help for psychological distress. The current study is, to our knowledge, the first to determine which of many positive and negative attitudes predict whether or not students are likely to seek help for psychological distress.

Study aim

This study aimed to identify specific attitudes that predict the likelihood that young first-year psychology students will seek professional help for psychological distress (stress, anxiety, or depression). For the purpose of this study, we adopted Dearing et al.'s (2005) definition of attitudes towards seeking professional mental health care: "*A collection of beliefs about therapy and the evaluative component of these beliefs. These beliefs include whether the individual sees therapy as potentially beneficial and whether the individual views personal psychotherapy as an option of himself or herself*" (p. 324). We expected to identify specific attitudes that might be strengthened in interventions aiming to build mental health resilience and improve the use of personal mental health care for psychological distress among psychology students. We hypothesized that intentions to seek professional help for psychological distress would be generally low in the current sample. Female sex is a consistent predictor of more favorable attitudes towards seeking professional psychological help (Mackenzie, Knox, Gekoski, & Macaulay, 2004; Nam et al., 2010), and we therefore predicted higher help-seeking intentions in females than males. Specific attitudes which would distinguish help seekers from non-help seekers were not predicted, due to a lack of previous research.

Method

Participants

Data reported in this study were collected from students enrolled in first year psychology classes in one regional Australian university. All students in first year psychology

classes were invited to participate in the study; approximately 60% responded. Given our focus was on help-seeking in young people, students aged 26 years and above ($n = 32$) were excluded from the study. A total of 289 students, ranging in age from 18 to 25 years ($M = 19.75$, $SD = 1.12$ years), participated. One-hundred and seventy-three (59.9%) participants were older adolescents aged 18-19 years, and 116 participants (40.1%) were young adults aged 20-25 years. Sixty-two participants (21.4%) were male and 227 (78.5%) were female. Approximately 98% of the sample was born in Australia, and the remaining 2% were born in Europe, Scandinavia, Asia, North America, South America, and South Africa. Six percent of the total sample ($n = 17$) were currently receiving treatment from a family doctor, psychiatrist, psychologist or counselor for a mental health problem (depression, anxiety, or an eating disorder).

Procedure

The University's Human Research Ethics Committee approved the research protocol. Participants were recruited through the School of Psychology student research participation scheme and completed an anonymous online self-report survey in return for course credit. Data analyses were performed using IBM Statistical Package for the Social Sciences (SPSS), Version 20.

Measures

Intentions. Help-seeking intentions for future psychological distress (symptoms of stress, anxiety, or depression) were measured by an extended version of the General Help Seeking Questionnaire (GHSQ; Wilson et al., 2005) – the GHSQ vignette version (GHSQ-V; Wilson, Rickwood, Bushnell, Caputi, & Thomas, 2011a). The GHSQ-V uses vignettes to describe DSM-IV-TR criteria for different disorders, alongside standard GHSQ stem-questions, to measure help-seeking intentions for different symptom-types. In the current study, participants rated the likelihood that they would seek assistance from three different

mental or general health services (counselor, psychologist or psychiatrist; telephone counselor; family doctor/GP) for three types of symptoms (stress, anxiety, or depression) [3 types of mental health service x 3 symptom types = a total of 9 intentions items]. The three vignettes and stem-questions that were used in this study are supported by sound reliability and construct validity in a sample of young adults and are reproduced in full elsewhere (Wilson et al., 2011a). Participants rated each intentions item on a 7-point scale (1 = “*Extremely unlikely*” to 7 = “*Extremely likely*”, with 4 = “*Not sure*”) and a reliable ‘*personal therapy*’ scale was formed by averaging the nine intentions items ($M = 3.23$, $SD = 1.08$; $\alpha = .85$). Consistent with previous research, the distribution of help-seeking intentions scores was not normal, hence we followed an established approach of dichotomizing the continuous scores, using the median score as the cut-off (e.g. Sawyer et al., 2012). GHSQ-V intentions scale scores of ≤ 4 were coded ‘*Unlikely*’ and scores of > 4 were coded ‘*Likely*’ before use in the main logistic regression analyses. Less than one quarter of the total sample (22%) reported that they would be *likely* to seek professional help should they develop symptoms of psychological distress.

Attitudes about the risks and benefits of approaching a health professional for assistance were measured using the 8-item Disclosure Expectations Scale (DES; Vogel & Wester, 2003). An example of a risk item is “*How risky would it feel to disclose your hidden feelings to a health professional?*” and an example of a benefit item is “*How helpful would it be to self-disclose a personal problem to a health professional?*” Respondents rate the extent to which they agree with each item on a 5-point scale with 1 = ‘*Not at all*’, 5 = ‘*Very*’, and 3 = ‘*Somewhat*’. In the current study, the 4 items comprising the Risk subscale ranged from $M = 2.73$ ($SD = 1.08$) to $M = 3.44$ ($SD = 1.22$), and the four Benefits items ranged from $M = 3.44$ ($SD = 1.00$) to $M = 3.62$ ($SD = 1.02$). Both subscales had a Cronbach’s alpha coefficient of .81, indicating that, in this sample, the Risk subscales had a stronger internal consistency

and the Benefits scale has a slightly lower internal consistency than previously found in North American undergraduate psychology student samples (e.g., Risk = .74 and Benefits = .83; Vogel & Wester, 2003).

General attitudes about seeking professional psychological help were measured by the 10 positively and negatively phrased items of the brief Attitudes to Seeking Professional Psychological Help Scale (ATSPPHS; Fischer & Farina, 1995). Respondents rate the extent to which they agree with each attitude (e.g., “*If I believed that I was having a mental breakdown, my first thought would be to get professional attention*”, and “*Personal and emotional problems, like many things, tend to work out by themselves*”) on a 4-point scale from 0 = “*Strongly disagree*” to 3 = “*Strongly agree*”. In terms of test characteristics, Fischer and Farina (1995) found that the brief version of the ATSPPHS had sufficient overlap with the original 29 item version to be substituted for the original version when need be. The researchers also found that the brief version of the scale appeared to have the same psychometric properties as the original scale. In the present study, items were scored so that higher scores indicate stronger attitudes to seeking professional assistance and ranged from $M = 1.47$ ($SD = .92$) to $M = 2.33$ ($SD = .77$). Cronbach’s alpha was $\alpha = .78$, suggesting that, in this sample, the brief scale had a lower internal consistency than previously found in samples of North American undergraduate psychology students (e.g., $\alpha = .84$, Fischer & Farina, 1995).

Results

Preliminary results

Preliminary chi-squared analyses were conducted to examine the extent to which age and sex differences might influence the key research variables. Chi-squared analyses between age and intention, $\chi^2(1, N = 289) = 1.17, p = .281$; Odds Ratio (OR) = 1.36, 95% Confidence Interval [CI] = 0.78-2.39, and between sex and intention were not significant, $\chi^2(1, N = 289)$

= 3.48, $p = .062$; OR = 2.12, 95% CI = 0.95-4.73, suggesting that help-seeking intentions were statistically independent of age and sex; females, however, were approximately twice as likely as males to intend to seek mental health treatment. As a precaution, subsequent analyses controlled for sex.

Main results

A logistic regression analysis was conducted to ascertain the extent to which multiple specific attitudes (as measured by the ATSPPHS) and expectations (as measured by the DES) predicted *Unlikely* or *Likely* intentions to seek professional mental health care (as measured by the GHSQ-V). Initially, participants' score on all items together with their sex were included in the model. The predictors added to the model significantly improved the null model, $\chi^2 (19, N = 289) = 56.49, p < .001$ (-2 LL statistic = 279.58, Cox & Snell $R^2 = .17$, Nagelkerke $R^2 = .27$). Parameter estimates, odds ratios and confidence intervals identified two attitudes: "*If I believed that I was having a mental breakdown, my first thought would be to get professional attention*" ($B = .54, SE = .22, p = .01$; OR = 1.72, 95% CI = 1.11-2.67) and "*A person with an emotional problem is not likely to solve it alone; he or she is likely to solve it with professional help*" ($B = .49, SE = .24, p = .04$; OR = 1.58, 95% CI = 0.99-2.50) that significantly predicted stronger stated intentions to seek professional help. Given the possibility of multicollinearity between attitudes and expectations items, collinearity diagnostics were conducted and found that for seven IVs in the model, tolerance statistics were 0.1 or less and the corresponding VIF statistics were 10 or greater. With these seven items removed from the model (ATSPPHS items 2, 5, and DES items 2, 3, 6, 7, 8), the predictors added to the model still significantly improved the null model, $\chi^2 (12, N = 289) = 52.80, p < .001$ (-2 LL statistic = 249.79, Cox & Snell $R^2 = .17$, Nagelkerke $R^2 = .26$). Similarly, parameter estimates, odds ratios and confidence intervals still identified the same two attitudes: "*If I believed that I was having a mental breakdown, my first thought would be*

to get professional attention” ($B = .53, SE = .21, p = .01$; OR = 1.70, 95% CI = 1.13-2.58) and “*A person with an emotional problem is not likely to solve it alone; he or she is likely to solve it with professional help*” ($B = .45, SE = .23, p = .04$; OR = 1.56, 95% CI = 0.99-2.45) as significantly predicting stronger stated intentions to seek professional help. Thus students with these specific positive attitudes towards treatment were over 1.5 times more likely to indicate that they would seek help should they develop mental health problems.

Discussion

The study identified two attitudes that are strongly associated with first-year psychology students’ intentions to seek personal treatment for symptoms of general psychological distress. Students who strongly endorsed attitudes that: “*If I believed that I was having a mental breakdown, my first thought would be to get professional attention*”, and “*A person with an emotional problem is not likely to solve it alone; he or she is likely to solve it with professional help*”, were more likely to report intentions to seek professional treatment for distress symptoms than those with other positive attitudes towards seeking professional treatment. The first item (help for a mental breakdown) relates to openness to seeking treatment for emotional problems, whereas the second attitude (emotional problems don’t tend to be solved alone) relates to recognition of the value of, and need for, treatment (Elhai, et al., 2008). Additionally, both items relate to recognition of problematic symptoms. Therefore, the attitudes that are associated with intentions to seek personal treatment in this study relate to openness to seeking treatment for emotional problems, the recognition of symptoms, and the value of, and need for, professional help.

It is well documented in the mental health help-seeking literature that the process of seeking mental health care starts with accurately recognizing one’s symptoms and need for help (Wilson, Bushnell, & Caputi, 2011b), and there is evidence that fear of expressing emotions is a barrier to seeking counseling (Komiya, Good, & Sherrod, 2000). This finding

suggests that undergraduate psychology students' uptake of mental health treatment might be improved by universal and targeted strategies that focus on increasing openness to seeking treatment for emotional problems, symptom recognition, and knowledge of the value and need for professional help (Wilson et al., 2011b). Coverage of clinical and counseling psychology is variable in undergraduate courses (Goh et al., 2007), and openness to seeking treatment for emotional problems may be increased by explaining that there are mental health professionals who will work collaboratively with students towards their goals, without coercion into undesired intense emotional experiences (Komiya et al., 2000). Symptom recognition may be improved by early training in mental health literacy focusing specifically on recognizing symptoms of stress and common mental disorders. Although symptoms of mental disorders are taught in abnormal psychology classes, there may be a focus on pathology and on unusual conditions found in "others" rather than on self-care and early intervention for one's own psychological distress. Knowledge of the value and need for professional help may be increased by educating students that most adult mental disorders begin before age 24 (Kessler et al., 2005), that psychological distress is progressive with symptoms of anxiety often preceding the onset of mood disorders (Wilson, 2010), and that, if left untreated, mental disorders that first appear in young adulthood can cause distress and disability lasting for decades (Fergusson & Woodward, 2002), and lead to health impairing maladaptive coping strategies.

Additional findings are also worthy of note. As predicted, most psychology students reported that they were *unlikely* to seek mental health care if they were psychologically distressed, whereas, only one of four participants reported that they were *likely* to seek personal treatment. Additionally, far more females than males were *likely* to seek help in the event of psychological distress, consistent with previous help-seeking studies (Mackenzie, Knox, Gekoski, & Macaulay, 2004; Nam et al., 2010).

These results indicate that there is a strong need for education about self care and early intervention for psychological distress in undergraduate psychology students within the adolescent to young adult age range. They also support the introduction of such education during undergraduate psychology courses rather than waiting until postgraduate training. Such timing is further indicated by the overlap between the period of vulnerability to developing mental disorders (Kessler et al., 2005) with the typical timing of undergraduate study, and the greater likelihood of attitude change in younger age groups (Visser & Kronsnick, 1998) and those early in training (Gilroy et al., 2002; Pope & Tabachnick, 1994).

Given that most mental disorders, and inappropriate coping strategies, in professional psychologists will have developed before commencing graduate training, prevention and early intervention education during undergraduate courses may improve the mental health and wellbeing of future psychologists, potentially benefiting the profession and its clients. Although it could be argued that this approach will involve much redundancy, as many psychology students will not become professional psychologists, the health benefits of early intervention for mental health problems (Fergusson & Woodward, 2002) are likely to also personally benefit many students, regardless of their later vocation. The broader aims of tertiary education are to prepare students to make a positive contribution to society and function at high standards post-graduation, qualities which are often articulated in university graduate qualities policies (Stallman, 2011). General education about the importance of early intervention and prevention of psychological problems would therefore seem a priority component of a well rounded undergraduate education in psychology, regardless of the future vocation of the student. Currently, however, undergraduate psychology courses may not cover issues of personal wellbeing at all, and even in graduate psychology training programs, coverage may be neglected or minimal (Schwebel & Coster, 1998). Integrating information about prevention and early intervention for mental health problems into course material,

rather than expecting stressed students to source information separately, would also avoid stigmatizing particular students, and highlight the mainstream importance of the message.

The influence of faculty on students' lifelong self-care behaviors, including students' willingness to seek professional help for psychological problems is likely to be considerable, as students respond to the attitudes of their teachers. Modeling openness to seeking mental health treatment for the prevention and amelioration of psychological problems requires faculty, themselves, to have positive attitudes towards such treatment (Norcross, 2005). There is, however, evidence that academic psychologists may be unlikely to seek treatment for psychologically distressing problems (Norcross et al., 2008), even though psychologists may endure higher stress levels in academic than clinical settings (Boice & Myers, 1987). Such findings suggest that strategies to improve students' attitudes towards seeking mental health care might benefit from concurrent education at a faculty level.

Help-seeking intention is a common element in behavioral models that focus on the cognitive aspects of the help-seeking process (Schreiber, Renneberg, & Maercker, 2009). There is evidence that help-seeking intention is the action component in the decision to seek professional help (Wilson & Deane, 2010) and the cognitive function that is proximal to help-seeking behavior (Webb & Sheeran, 2006). The importance of the relationship between low help-seeking intentions and future mental health service use is also supported by research suggesting that low intentions are themselves important barriers to seeking professional help for psychological distress (Wilson et al., 2011a). Across international and Australian population-based studies, individuals who are not receiving treatment for symptoms of psychological distress are typically those who also report the lowest intentions to seek help from a mental health professional and the highest intentions to *not seek help from anyone* for their condition (Wilson et al., 2011a, 2011b). Together, our results suggest that undergraduate psychology students' future uptake of professional help for psychological distress might be

improved by strategies that strengthen help-seeking intentions as well as positive attitudes related to openness to seeking help for emotional problems, recognizing one's symptoms and need for treatment.

There are several limitations to the current study that should be considered when reviewing these results. Primarily, our study did not measure help-seeking behaviors so a causal relationship between attitudes about seeking professional help for psychological distress and actual help-seeking behavior cannot be established. Similarly, the use of cross-sectional data, collected at one time-point, does not allow for causal inferences. Future studies will be improved by tracking prominent attitudes to seeking help for psychological problems across the development of a psychologist's career from undergraduate student to graduate student to psychologist, and by matching these attitudes to actual help-seeking behaviors. Additionally, we considered participants' intentions in relation to the development of symptoms as depicted in standardized vignettes rather than against their current levels of symptoms. There is evidence that help-seeking intentions decline with higher levels of depressive symptoms (e.g., Sawyer et al., 2012; Wilson & Deane 2010), hence future studies should examine attitude changes in relation to symptom severity.

In conclusion, little attention has previously been focused on specific attitudes predicting the likelihood of help-seeking, and the optimal point to promote professional psychological help-seeking to psychology students. The current study clearly identified two attitudes that act as important barriers or facilitators to intentions to seek help in psychology students, which could be targeted early in educational programs.

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