In Review

Advances in Cognitive-Behavioural Therapy for Unipolar Depression

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Objective: To describe the main innovations in our theoretical understanding of depression and key clinical developments in cognitive-behavioural therapy (CBT). We outline the current status of CBT and discuss how it can respond to the public health problem of depression.

Method: We undertook a narrative literature review.

Results: CBT provides a sophisticated, empirically grounded account of depression and an evidence-based therapeutic approach for people who suffer from depression. Beyond its efficacy in treating acute depression, it has prophylactic effects and is acceptable to various populations in a range of settings. Good theoretical accounts of the emergence of depression in adolescence are forthcoming; to date, however, attempts at primary prevention are unconvincing. Our understanding of factors contributing to positive outcomes is growing, allowing CBT to be tailored to individual client needs.

Conclusions: CBT is a mainstay approach to depression. Significant remaining challenges include tailoring it to different populations and settings and, most importantly, ensuring that it is more readily accessible.

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Clinical Implications

- CBT is an evidenced-based approach to unipolar mood disorders.
- A case-formulation approach permits the best evidenced-based practice and manualized approaches to be combined.
- Particular emphasis on preventing relapse with recurrent depression is indicated.

Limitation

- This work relies on a narrative review of the literature, drawing on original studies and metaanalyses.

Key Words: *mood disorders, depression, cognitive-behavioural therapy, psychotherapy*

CBT has developed out of a creative and rigorous synergy between empirical evidence and clinical innovation. In the 1970s, a group of cognitive therapists in Philadelphia led by Aaron T Beck listened carefully to what their clients were saying and turned to learning theory and the cognitive revolution to formulate a new theoretical account and therapeutic approach to depression.[1] This first CBT therapy protocol was then subjected to efficacy research in the first RCT of CBT for depression,[2] which has since been followed with many more trials unequivocally demonstrating that CBT is an effective therapy for unipolar depression.[see 3] On the basis of this research, the original therapy protocol has been elaborated[4] and, for particular populations, substantively reformulated.[5] It is this commitment to evidence-based practice that has

ensured CBT's status as a treatment of choice for depression in most contemporary treatment guidelines.[e.g. 6] In this review paper, we elucidate the current empirical status of cognitive theories of depression, outlining the challenges to the theory and the necessary changes and elaborations. We then tackle an important line of work in the developmental psychopathology of depression that has profound implications for attempts at primary and secondary prevention among children and young individuals. We next ask whether the main CBT approaches are fit for the purpose of addressing the tremendous public health challenges posed by depression in our contemporary society. Here, we examine the questions: Does CBT work? and What works for whom? Finally, we describe what we view as the outstanding public health, clinical, and research challenges.

Re(?)Conceptualizing Mood Disorders

A clear strength of the CBT approach to depression is its grounding in a cognitive theory of depression that has been subjected to extensive empirical testing over several decades. This has brought the original theory[7] into focus and led to important elaborations and changes.[8] The cognitive model of depression that contextualizes CBT exemplifies the diathesis–stress approach to psychopathology. Three key components are emphasized: the nature of the diathesis for depression (that is, what makes individuals vulnerable to the development of depression[9]), the cognitive response to stress in such depression-vulnerable individuals, and the patterns of cognitive "interlock" that subsequently ensue. We outline these 3 components and highlight the key empirical studies that support their role in cognitive theory of depression.

The prototypical CBT model of depression[1] describes diathesis in terms of dysfunctional schemas (mental representations of higher-order aspects of meaning based on the regularities of past experience) that are dormant until activated by congruent life experiences. It is proposed that these schemas code aspects of the self, world, and future in broadly maladaptive ways—for example, the self as a failure, the self as unlovable, the future as hopeless, the world as malevolent, and so forth. More recent multilevel theories of depression have recast schemas as "schematic models"[10–12] that incorporate and integrate sensory, bodily, and propositional information. In these theories, activation of schematic models or modes generates "hot" affect-laden cognition, whereas activation of simple beliefs (for example, about the self), which are represented at a different level of the mental system, generates "cold" cognitions that are less directly linked to affect.

Abbreviations used in this article

CBASP	cognitive behavioural analysis system of psychotherapy
CBT	cognitive-behavioural therapy
MBCT	mindfulness-based cognitive therapy
PET	positron emission tomography
RCT	randomized controlled trial
SSRI	selective serotonin reuptake inhibitor

Because depressogenic schemas are proposed to be dormant in depression-vulnerable individuals, research examining the content of the schemas has generally involved processes of schema activation, for example, through inducing a negative mood.[13] Although the underlying schema structure can occasionally reveal itself without such activation,[14] individuals vulnerable to depression, when in a neutral mood, generally appear little different from nonvulnerable comparison groups on measures of schema content.[15] This may be because, when individuals vulnerable to depression are in remission, dysfunctional schemas are subordinate to more functional schematic representations. For instance, maladaptive self-schemas (such as the self as a failure) may be subordinate to functional self-schemas (such as the self as competent).[16] This balance flips under conditions of stress (including laboratory activation procedures), such that the depressogenic schemas become supraordinate and their content is unmasked. There is some evidence to suggest that the subordination of dysfunctional depressogenic schemas in vulnerable individuals who are in remission requires chronic cognitive effort that confers further vulnerability in the face of stress.[17]

The cognitive model proposes that the activation of latent or subordinate depressogenic schemas in daily life can be a response to congruent life events[1] or to transient downturns in mood.[18] This differential activation of dysfunctional schemas offers an explanation for the different response of depression-vulnerable individuals to such stressors, relative to their less vulnerable peers.[19] The cognitive model of depression argues that, once activated, depressogenic schemas drive sets of maladaptive psychological processes that, if allowed to go unchecked, can induce a depressive episode and thereafter help maintain the depressed state. There is also evidence that the process of schema activation underlying the onset of depressive episodes becomes more sensitized over time (the kindling hypothesis) and thus requires fewer adverse environmental stressors as a function of numbers of previous episodes of depression.[20]

Many of the psychological processes activated in response to stressors can be thought of as automatic, in that they require few mental resources and they operate largely outside the individual's control. Most prominent among these automatic processes are intrusive and repetitive negative thoughts reflecting the content of the underlying schemas,[21] distortions in attention,[22] and memory biases[23]; negative emotions that arise as a function of these cognitive processes; and, finally, in

individuals with chronic depression, maladaptive behavioural habits that may initially have reflected effortful attempts to deal with the depressed state (for example, behavioural avoidance[4]). In addition to these dysfunctional automatic processes, more strategic cognitive processes can also become maladaptive in individuals with acute depression. For example, attempts at problem solving manifest as depressive rumination[25] and efforts at thought and affect suppression become counterproductive.[26]

The final core component of the cognitive framework is a proposed interlock between the underlying schemas and the automatic and strategic cognitive and behavioural processes just described.[10] The automatic cognitive and behavioural processes characteristic of depression are driven by the underlying depressogenic schemas and, as a result, serve to parse experience in a schema-congruent way. This biased filtering of reality then further reinforces the underlying schematic representations in a vicious circle.

The biggest appeal of this broad theoretical cognitive framework for depression is the rationale it provides for CBT innovations, such as the primary and secondary prevention programs that we describe next.

The Developmental Psychopathology of Depression: A Panacea for Depression?

By definition, cognitive theory purports that diatheses for depression precede the onset of depressive disorder, and there is evidence to suggest that this is the case.[e.g. 27,28] For example, several studies have found that children at higher risk of developing depressive disorder by virtue of having a mother who has suffered from depression demonstrate more negative cognitive styles than are experienced by children of mothers who have never suffered from depression.[e.g. 29,30] A series of studies showing that negative attributions and low self-worth predicted persistence of negative mood following stressful events also support the differential activation hypothesis in children.[e.g. 31,32]

It follows that it should be possible to identify cognitive diatheses in vulnerable individuals and that work to change the diathesis in adolescents at risk should prevent depressive disorder from taking hold. The kindling hypothesis described above suggests that, with each successive episode of depression, cognitive processes are further affected to increase vulnerability for another episode. Thus, from a theoretical point of view, the earlier it is possible to intervene in this kindling process, the better chance of reducing vulnerability. Moreover, depression onset in adolescence tends to be associated with poorer course into adulthood.[e.g. 33,34] It follows that attempts to modify cognitive vulnerability through primary prevention programs should hold much promise for reducing the human and economic costs depression places on society.

Prevention programs have varied in their scope: targeted primary prevention programs focus on working with individuals who are judged to be at increased risk for depression (selective prevention) or who have already manifested subclinical symptoms of the disorder (indicated prevention). By contrast, universal prevention programs offer CBT-style training to all children in schools as part of the curriculum. The advantages of this latter approach are that it avoids participant stigma and it reaches participants with a wide range of risk factors, not just those identified by the researcher as particularly important. Universal programs are also associated with higher rates of participation and lower dropout rates. However, attempts at universal prevention have delivered unconvincing results[35,36]: Spence and colleagues found a CBT intervention to have an immediate effect in terms of reducing depressive symptoms, but these benefits were not maintained over 4 years of follow-ups. Targeted prevention programs have tended to have greater success.[37,38] For example, Clarke and colleagues[38] compared a control group and a CBT group and found that CBT halved the incidence of depression over a 12-month follow-up period for a group of adolescents who had elevated levels of depressive symptoms.

In a more recent RCT, an Australian study compared universal and indicated approaches with a combination approach in which all students participated in an initial program and those scoring in the top 20% of symptom measures were given a further program of longer, small-group sessions.[39] A control group took part in the completion of research measures but was given no intervention. In this large-scale study, no differences were found across interventions or across outcome measures in terms of episodes, symptoms, or psychosocial functioning. This null finding supports the idea that there may be a need to change other risk or protective factors in the home, school, and social environment and that modifying cognitive vulnerability might not be sufficient in a younger age group.

Cognitive therapy with young people is not only used in the prevention of first onset: where acute depressive disorder develops in a young person, the same theoretical arguments apply in support of early intervention to prevent further kindling of cognitive vulnerabilities. There is also a theoretical basis for the position that early adolescence is the most powerful time to apply cognitive techniques. Generally, this has involved applying mainstream CBT techniques when working with young people, with some modifications to take into account developmental differences.[see 40] For example, the need to pay special attention to forming the therapeutic alliance is emphasized, family involvement may be particularly important, high rates of comorbidity (particularly with anxiety and substance abuse) need to be considered, and novel formats for engaging young people are vital.

RCTs generally support the use of CBT to promote recovery from depression in children and adolescents.[see 41,42] Rates of episode remission tend to fall in the range of 50% to 65%, compared with about 30% in control groups. In a review and metaanalysis, Harrington et al concluded that CBT for children is efficacious, producing significant benefit on a range of outcomes.[42,43] However, most trials have involved children and adolescents with depressive disorders of mild-to-moderate severity, and in trials where predictors of outcome have been tested, greater severity of depression has been a significant predictor of poorer treatment response. Therefore, there is as yet no evidence base for recommending CBT for severe depression in the group aged younger than 20 years. Evidence for the effectiveness of CBT for children under the age of 9 years is also lacking. Lately, significant concern has been expressed about the use of antidepressants to treat young people with depression, which creates difficulties for medical guidance councils making evidence-based recommendations for the treatment of children suffering from depression.[see 44]

More recent studies exploring comparisons between CBT and antidepressant therapy, alone or in combination, have found mixed results, with less convincing support for the benefit of CBT. Clarke et a1[45] found that adding CBT to antidepressant medication (specifically, SSRIs) had no advantage in promoting remittance of depressive disorder over a 1-year follow-up and that only a nonsignificant trend favoured CBT on a measure of depressive symptoms. Conversely, a much larger, multisite study, the Treatment of Adolescent Depression Study,[46] found that CBT and SSRIs in combination provided the most effective treatment for promoting recovery from depression (71%) in adolescents aged 12 to 17 years, whereas CBT alone (43%) was less effective than SSRIs alone (61%) and marginally better than a pill placebo (35%).

CBT for Depression: Fit for Purpose?

The original CBT protocol includes several phases of therapy: deriving a problem–goal list; behavioural activation; eliciting and responding to negative automatic thoughts, dysfunctional assumptions, and core beliefs; and relapse prevention. The protocol has been adapted for children and adolescents,[45] for chronic depression,[4,46] and for relapse prevention.[47–50]

Efficacy research spans 40 years[2,3] and includes numerous independent replications, through uncontrolled clinical trials to nearly 100 RCTs and effectiveness studies. Butler et al[3] recently reviewed existing CBT metaanalyses. For unipolar depression, they identified 3 metaanalyses and concluded that CBT produces large within-group effect sizes for symptom improvement. Moreover, CBT is at least comparable to antidepressant medication and other evidence-based psychological therapies, including interpersonal therapy and behavioural activation. Most outcome research relates to individual CBT, but there is evidence to suggest that group CBT is equally effective.[see 51] Importantly, the beneficial effects of CBT appear to persist up to several years posttreatment and are associated with preventing relapse. There is sound evidence that CBT may be superior to continuation antidepressants in preventing relapse. However, a recent trial comparing patients initially treated successfully through either antidepressants or CBT, and then continued on antidepressants or booster CBT, suggested equivalent rates of relapse across the CBT and antidepressant conditions.[52] A critique arising from an important early trial[53] was that CBT was not effective for moderate and severe depression. Subsequent trials have shown CBT to be equivalent to antidepressant medication in the treatment of moderate-to-severe depression,[54,55] although site differences in this most recent trial suggest that therapist selection, training, and supervision are likely to be especially important with clients suffering from severe depression.[55] Moreover, many therapists regard chronic depression as difficult to treat because cognitive and behavioural patterns are ingrained and client resources depleted. This has led to CBASP,[49] a version of CBT that places considerable emphasis on functional analysis of the problematic interpersonal behaviours used to change contingencies in people's lives. In a key trial, CBASP was shown to be especially efficacious when used in combination with antidepressants.[56] This trial excluded patients who had previously not responded to treatment, a significant subpopulation in this difficult-to-treat group.

Another frequent critique is that RCTs do not mirror real-world clinical practice. Although this is doubtless true in significant ways,[57] addressing the empirical question of whether RCT findings translate to real world settings suggests that CBT produces comparable effect sizes when the external validity of study designs is maximized.[58,59] Taking this one step further, quality improvement programs emphasize access to evidence-based therapies in primary care, and these initiatives have shown marked improvements in depression, disability, and quality of life in the general population of people suffering from depression,[60,61] as well as in minority groups who typically access therapy at lower rates.[62]

Outside the main body of CBT outcome research, several important studies are noteworthy because they signal important future developments. A seminal dismantling study sought to separate the behavioural and cognitive elements of CBT by including a treatment arm with only the behavioural components and another arm incorporating both the behavioural and cognitive components of CBT. The 2 conditions were equivalent in outcome at the end of therapy[63] and at follow-up 2 years later.[64] These findings suggest that interventions encouraging behavioural change may be as efficacious as behavioural and cognitive interventions combined. In a similar vein, it has

been argued that much of the symptom change in CBT occurs in the first few sessions, which focus on behavioural activation.[65] Taken together, these arguments offer a promising rationale for resurgence in behaviour therapy as a cost-effective way of treating depression. Behaviour therapy has its roots in early behavioural approaches that conceptualized depression as a response to decreased positive reinforcement and increased avoidance in the individual's behavioural repertoire.[66] Behaviour therapy involves understanding the functions of behaviour in context and seeking to change the contingencies in a client's life to make them more functional.[67] Its advantages include its high credibility for clients and the relative ease with which clients understand and use it.

Depression tends to be highly recurrent, causing significant human suffering and economic burden. Motivated by a desire to develop a cost-effective approach to secondary prevention of depression, 3 clinical researchers developed a group-based therapy drawing on the differential activation account of relapse[see above and 19] and effective mindfulness approaches to chronic health conditions.[68] Evidence to date from 2 RCTs suggests that MBCT halves the rates of relapse in individuals who have experienced multiple episodes of depression, compared with treatment as usual.[69,70] Although it is promising, we do not yet know how MBCT compares with other evidence-based approaches (including standard CBT). An important study compared group CBT oriented to preventing relapse to treatment as usual in a group of people with a history of previous depression.[50] This study found that group CBT halved rates of relapse up to 2 years later, intriguingly paralleling the MBCT findings. The question remains whether MBCT or CBT work to prevent relapse through the hypothesized mechanism of changing higher-order meanings and ways of processing emotional information that tend to become activated when these patients experience low mood states.

What Works for Whom? Process-Outcome Research

Process-outcome research asks the question, What works for whom? Answers to this question allow CBT to be better targeted to improve its acceptability, dissemination, efficacy, and effectiveness. The cognitive account of depression (above) predicts the mechanisms that make CBT helpful. Specifically, the cognitive components of therapy should lead to changes in information processing and belief content, which should in turn lead to improved well-being and reduced depressive symptoms. Using several questionnaire measures of negative thinking, a series of studies appeared to suggest that different treatment modalities (including pharmacotherapy) created changes in thinking and that these changes appeared to be associated with symptom change rather than mediating symptom change.[71] However, there is some evidence that changes in inferential style are observed at higher rates in CBT, compared with antidepressant treatment, and that these cognitive changes at least partly mediate symptom change in CBT.[72] Moreover, one study has shown that some clients engaged in CBT for depression show sudden gains in their symptom-response profile and that these gains are associated with cognitive changes in the preceding session.[73] However, at least one study has failed to replicate this finding.[74] The jury is out on what mediates change in CBT, and further process-outcome evidence is required to reach a verdict.

We have described theoretical elaborations of the cognitive theory suggesting that cognitive reactivity at times of low mood may be particularly important in recovery from depression. Several impressive studies have shown that patients treated successfully with CBT are indeed less cognitively reactive than patients treated successfully with antidepressants following a sad mood induction.[75] Further, the degree of cognitive reactivity predicts relapse.[13] Interestingly, when patients develop an extreme inferential style through CBT (that is, thinking at the negative and positive poles rather than along the continuum), this too can predict relapse.[76] Moreover, being able to stand back and take a wider perspective on experience appears to be associated with sustained recovery.[77] This finding provides promising evidence that being able to moderate inferential thinking through taking a wider perspective may mediate recovery from depression.

A recent innovation in this field has examined the neuroscience of the cognitive theory of depression and of the changes that occur during CBT for depression. PET scanning comparing the brain serotonin transporters in individuals with and without depression suggested no global differences.[78] However, within the group suffering from depression, endorsement of high rates of dysfunctional beliefs was associated with reduced serotonin transporter function. In another PET imaging study, recovery through CBT was associated with changes in functioning in the limbic and cortical areas of the brain, with unique changes in the frontal cortex, cingulate, and hippocampus associated selectively with CBT, compared with a paroxetine-treated group.[79] Finally, in a small-scale study, patterns of reactivity to emotional stimuli evidenced in the cingulate and amygdala at baseline were associated with symptom changes in a 16-session course of CBT.[80] The authors tentatively suggest that CBT might be most helpful for patients who demonstrate increased emotional reactivity that they cannot readily regulate. Work on the neuroscience of CBT is clearly at a very early stage of development but promises to increase our understanding of the cognitive theory of depression, mechanisms of change in CBT, and particularly,

of mind–brain changes associated with recovery from depression.

One way to approach the question of what works for whom is to consider facets of the therapy and therapist associated with therapy outcomes. The most promising set of findings suggests that clients' engagement with homework predicts outcome.[81] Moreover, therapists who attend to this aspect of CBT are able to improve clients' engagement with homework, with associated improvements in outcome.[82] CBT therapist competence appears to explain a significant amount of variance in outcomes,[83,84] with one recent study suggesting that as much as 15% of the variance in outcome may be attributable to therapist competence.[85] Looking at subcomponents of therapist competence suggests that adherence to the protocol and focusing on specific concrete issues (as opposed to global exploratory issues) were associated with better outcomes.[86,87]

Finally, several client variables provide promising avenues of further research and clinical innovation.[see 88] Consistently, severity of symptoms at intake predicts poorer outcomes,[e.g. 89] and residual symptoms at discharge predict relapse.[e.g. 90] Importantly, these findings have led to elaborations of the CBT protocol for moderate-to-severe depression and for residual symptoms, with encouraging supportive evidence of their efficacy in both acute depression and relapse prevention.[49,52,55,91,92] The findings on comorbidity and outcome are more complex, in part because comorbidity is often an exclusion criterion in outcome studies. For clients presenting with a primary diagnosis of depression on Axis I, comorbidity is common and appears to be associated with poorer CBT for depression outcomes.[93,94] However, there is some evidence that Axis II comorbidity tends to be associated with greater pretreatment, as well as posttreatment, depressive symptoms.[95–97] A special issue of the *Journal of Consulting and Clinical Psychology* reviewed the arguments regarding treatment planning for clients with comorbid presentations, recommending that accurate diagnosis, consideration of different approaches to treatment, and sequencing of interventions will maximize the chances of successful CBT in this population.[98,99] At a more idiographic level, a tendency toward more extreme, stable, and avoidant inferential styles appears to compromise outcomes in CBT for depression.[96,100] A CBT protocol specifically oriented toward personality disorders provides a rich resource for working with these inferential styles and extreme behaviour patterns.[101] Contrary to some early clinical lore, client intelligence does not affect CBT outcomes.[102] Finally, married individuals consistently do better in CBT.[103]

One approach to ensuring optimal outcomes is to use case formulation, in which an individualized understanding of a particular client is used to guide therapy. Most CBT therapists use case formulation in this way; however, we argue that the research evidence in this area suggests it is only when case formulation is used judiciously and skilfully that it improves clients' experiences and outcomes in CBT.[see 104,105] Process-outcome research requires complex designs and large samples to generate enough power to detect interaction effects. It is therefore premature to conclude that we have a solid understanding of what CBT works for which people presenting with depression. Nonetheless, this literature demonstrates the importance of subjecting clinical lore to scrutiny and provides several clear and emerging guides for CBT therapists.

Where to Next? Outstanding Public Health, Clinical, and Research Challenges

It is extraordinary that CBT evolved out of a 1970s context where biological and psychoanalytic approaches to depression were predominant to become a sophisticated, empirically grounded account of depression and an evidence-based therapeutic approach for people who suffer from depression. We anticipate that the next 30 years will see a range of exciting developments. CBT for acute depression is effective and appears to offer longer-term protection against relapse. A remaining challenge is to develop evidence-based primary prevention programs based on an emerging theory of the developmental psychopathology of depression as well as on established CBT treatment principles. A further challenge is to extend the evidence base to different populations (for example, those with comorbid diagnoses, children, and older adults) and to adapt CBT to make it acceptable in different settings (for example, inpatient and residential settings) and through different modalities (for example, self-help and web-based). A significant challenge at the level of policy is the availability of CBT: organizing services and training therapists so that people suffering from depression can access high-quality CBT is a challenge that some groups are beginning to address.[see 106] Dissemination of high-quality CBT through a network of high-quality training and supervision networks is only recently becoming a reality, as evidenced by national centres such as the Cognitive Therapy Institute in Toronto and the Beck Institute for Cognitive Therapy. However, real dissemination will become possible only when these models are systematically incorporated into the professional training of psychologists, psychiatric nurses, psychiatrists, and social workers. Given the very substantial public health challenge of depression, these challenges are something to which the next generation of clinical researchers and clinicians must attend.

Note

It is beyond the scope of this review paper to describe CBT in full. Interested readers are referred to seminal texts in this area.[1,8,107]

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Résumé : Progrès de la thérapie cognitivo-comportementale pour la dépression unipolaire

Objectif : Décrire les principales innovations dans notre compréhension théorique de la dépression et les développements cliniques clés de la thérapie cognitivo-comportementale (TCC). Nous présentons l'état actuel de la TCC et discutons comment elle peut possiblement répondre au problème de santé publique qu'est la dépression.

Méthode : Nous avons entrepris un examen narratif de la documentation.

Résultats : La TCC offre un exposé complexe à fondement empirique de la dépression, ainsi qu'une approche thérapeutique fondée sur des données probantes pour les personnes souffrant de dépression. Outre son efficacité à traiter la dépression aiguë, elle a des effets prophylactiques et est acceptée par diverses populations dans un éventail de milieux. De bons exposés théoriques sur l'apparition de la dépression à l'adolescence paraîtront bientôt, cependant, jusqu'ici, les tentatives de prévention primaire ne sont pas concluantes. Notre compréhension des facteurs qui contribuent à des résultats positifs grandit, permettant ainsi d'adapter la TCC aux besoins personnels des clients.

Conclusions : La TCC est l'approche de soutien principale de la dépression. Il reste des défis significatifs, dont l'adapter aux différents milieux et populations, et surtout, faire en sorte qu'elle soit plus facilement accessible.