Studi keamanan makanan konsumen rumah tangga di Trinidad, Hindia Barat

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ABSTRAK: Telah ada sedikit penelitian tentang pengetahuan keamanan makanan, persepsi dan praktik penanganan makanan di rumah-rumah di Trinidad, Hindia Barat. Pertanyaan diajukan tentang karakteristik demografis 84 responden, pelaporan penyakit yang ditularkan melalui makanan, praktik mencuci tangan, pembelian makanan, pemisahan makanan mentah dan makanan yang dimasak, memasak makanan, pencairan dan pendinginan makanan, dan konsumsi telur mentah. Studi ini menemukan 52,4% konsumen pernah mengalami beberapa bentuk penyakit bawaan makanan dengan gejala utama muntah dan diare (48,8%). Dari mereka yang pernah mengalami penyakit bawaan makanan, hanya 23,8% yang mencari perawatan medis. Jika makanan ditemukan rusak atau terkontaminasi, sebagian besar konsumen (69,0%) gagal melapor ke pihak berwenang terkait. Sebagian besar responden mencuci tangan dengan sabun dan air sebelum menyiapkan makanan (88,1%), setelah menggunakan fasilitas toilet 92,9% dan setelah menangani makanan mentah atau benda yang terkontaminasi (84,5%). Minoritas responden (4,8%) membeli makanan dari vendor yang tidak menampilkan tanda makanan, sementara beberapa (35,7%) 'kadang-kadang' membeli makanan. Ketika konsumen ditanya apakah mereka melihat label makanan dan tanggal kadaluwarsa sebelum membeli makanan, 61,9% menjawab dengan persetujuan, sementara 33,3% menunjukkan 'kadang-kadang'. Beberapa (16,7%) konsumen tidak memisahkan makanan yang dimasak atau siap makan dari makanan mentah. . Sebagian besar konsumen mencuci sayuran (97,6%) dan daging (91,7%) sebelum disajikan atau dimasak. Beberapa konsumen (45,2%) mencairkan makanan beku pada suhu kamar, sementara yang lain (33,3%) melakukannya 'kadang-kadang'. Meskipun penelitian ini memiliki ukuran sampel yang terbatas, penelitian ini menekankan perlunya pendidikan keamanan pangan publik kepada konsumen.
Kata kunci: Trinidad, Hindia Barat, konsumen, pengetahuan keamanan pangan, praktik penanganan makanan, pendidikan publik

Pendahuluan

Tanyakan seseorang tentang penyakit yang ditularkan melalui makanan dan respons awal akan menjadi refleksi dari pengalaman pribadi. Sebagian besar akan menceritakan beberapa episode dramatis di mana mereka makan 'barang yang dicurigai' dan sebelum mereka tahu mereka merasa sakit. Pusat Pengendalian dan Pencegahan Penyakit, Atlanta memperkirakan bahwa sekitar sepertiga penduduk di Amerika Serikat menderita penyakit yang ditularkan melalui makanan setiap tahun (Griffiths, 2002). Setiap hari di Amerika Serikat, sekitar 200.000 orang jatuh sakit karena penyakit yang ditularkan melalui makanan, 900 dirawat di rumah sakit dan 14 orang meninggal (Schlosser 2001) Pusat Epidemiologi Karibia (CAREC, 2002) melaporkan bahwa ada 2.597 kasus penyakit yang disebabkan oleh makanan pada tahun 2000 dan 1905 kasus pada tahun 2001 (hingga 8 Februari 2002) untuk negara-negara anggota CAREC. Sementara makanan yang memadai, bergizi dan aman sangat penting untuk kelangsungan hidup manusia, makanan juga dapat menyebabkan atau membawa risiko bagi kesehatan dan bahkan kehidupan itu sendiri. Kekhawatiran internasional tentang pengetahuan keamanan makanan konsumen telah mendorong banyak penelitian untuk mengevaluasi praktik penanganan makanan dalam negeri (Redmond dan Griffith, 2003).

Studi internasional (Bryan 1988; Scott et al., 1982, Scott, 1996) menunjukkan bahwa proporsi yang signifikan dari penyakit bawaan makanan muncul dari praktik di dapur rumah. Di Eropa, rumah adalah salah satu tempat yang paling sering mendapatkan penyakit bawaan makanan (WHO, 1992). Studi epidemiologis telah mengindikasikan bahwa kasus sporadis atau wabah kecil di rumah merupakan penyebab sebagian besar insiden keracunan makanan (Worsfold dan Griffith, 1997). Dengan populasi sekitar 1,26 juta di Trinidad dan Tobago, (Tradeport, 2003), ada sedikit penelitian tentang masalah keamanan pangan konsumen. Trinidad memiliki kelas menengah yang mapan dan terus tumbuh yang akan terus menuntut makanan siap saji. Seperti di masyarakat modern lainnya, banyak perempuan bekerja di luar rumah dan dengan demikian ada peningkatan tuntutan waktu pekerja rumah tangga (Trinidad dan Tobago: Laporan Pasar Pangan 1996). Sejumlah besar persiapan dan penanganan makanan terjadi di lingkungan domestik, sehingga penelitian dan pendidikan konsumen mengenai risiko praktik penanganan makanan yang tidak aman merupakan elemen penting dari pencegahan penyakit bawaan makanan (Kaferstein, 1997). Perilaku orang di rumah mungkin merupakan cerminan yang baik dari pengetahuan mereka atau setidaknya apa yang mereka yakini penting (Daniels, 1998). Kita hanya memiliki sedikit informasi tentang praktik-praktik penanganan keamanan pangan oleh konsumen trinidad dan Tobago. Data yang diberikan dalam penelitian ini akan mencerminkan pengetahuan keamanan pangan, persepsi terhadap keamanan pangan dan bagaimana makanan ditangani di rumah oleh konsumen di Trinidad, Hindia Barat

1.0 METODOLOGI

1.1 *Demografi konsumen*

Kuisioner dikelola sendiri untuk konsumen rumah tangga yang dipilih secara acak di Port-of Spain (Barat Laut), Arima (Timur Laut), dan St. Augustine (Timur) Trinidad, Hindia Barat antara Oktober hingga November 2002. Ukuran sampel terdiri dari 84 responden yang bersedia, (39.9% laki-laki dan 63,1% perempuan) yang berusia antara 18 - 63 tahun (16-24 tahun - 45,3%; 25-34 tahun - 32,3%; 35-44 tahun - 11,6 %; 45-54% - 9,6% dan 55-64% -1,2%). Kuesioner ini telah diuji sebelumnya oleh 10 konsumen untuk mengidentifikasi kata-kata dan urutan pertanyaan, administrasi dan lama wawancara. Dalam ulasan studi keamanan makanan konsumen, kuesioner yang dikelola sendiri telah digunakan untuk mencapai 62-824 responden (Redmond dan Griffith, 2003). Dalam penelitian ini, konsumen rumah tangga adalah didefinisikan sebagai orang yang berusia lebih dari 16 tahun, yang membeli dan menyiapkan makanan secara teratur di rumah dan telah mengakses kulkas di dapur. Dalam penelitian ini, responden adalah lajang (69%), menikah (25%), bercerai (2,4) %), dalam hubungan hukum (2,4%) atau lainnya (1,2%). Afiliasi agama mereka adalah: 39,3% Katolik Roma, 21,4% Hindu, 8,3%, Anglikan 4,6%, Advent Hari Ketujuh, 3,6% Islam, 3,6% Presbiterian, 2,4% Pantekosta, 1,2% Baptis Spiritual dan 11,9% tidak diberikan / lainnya / tidak ada.

1.2 *Desain Kuesioner*

Kuesioner terdiri dari 18 pertanyaan daftar periksa tentang karakteristik demografis (jenis kelamin, usia, status perkawinan, agama) responden, pelaporan penyakit bawaan makanan, praktik mencuci tangan, pembelian makanan, pemisahan makanan mentah atau siap saji siap makan, praktik memasak, pencairan dan pendinginan makanan, dan konsumsi telur mentah. Dalam banyak penelitian telah menunjukkan bahwa praktik yang dilaporkan sendiri tidak sesuai dengan perilaku keamanan pangan yang diamati (Redmond dan Griffith, 2003). Respons terhadap pertanyaan dikategorikan sebagai selalu, kadang-kadang atau tidak sama

sekali. Bagian kosong dibiarkan dalam kuesioner untuk memungkinkan responden untuk menulis komentarnya yang relevan dengan pertanyaan. Semua data dikelola dalam spreadsheet (EXCEL 97, Microsoft) Tanggapan dilaporkan dalam persentase.

2.0 HASIL & PEMBAHASAN

2.1 *Pelaporan penyakit bawaan* makanan

Penyakit yang disebabkan oleh penyakit bawaan makanan didefinisikan sebagai 'penyakit yang bersifat menular atau beracun yang disebabkan oleh atau diduga disebabkan oleh konsumsi makanan atau air' (Tirado dan Schmidt, 2000). 52,5% konsumen yang dikhawatirkan telah mengalami beberapa bentuk penyakit yang ditularkan melalui makanan, dengan 48,8% memiliki gejala muntah dan diare, 36,9% penglihatan kabur, mual dan sakit perut, 20,2% dingin dan demam, 19% mengalami sakit kepala dan 1,2% termasuk lainnya. misalnya pusing. Penyakit bawaan makanan secara luas diakui dari efek akut pada saluran pencernaan, tetapi juga termasuk gejala lain di seluruh tubuh (Arthur 2002). Gejala umum penyakit bawaan makanan adalah diare, kram perut, demam, sakit kepala, muntah, kelelahan parah dan kadang-kadang darah atau nanah dalam tinja (FSIS 2002). Insiden penyakit bawaan makanan sulit dipastikan karena kasus penyakit tidak dilaporkan (Danau) et al., 2000). Dipercayai bahwa di negara-negara industri kurang dari 10% kasus dilaporkan, sementara di negara-negara berkembang dilaporkan kurang dari 1% dari total kasus (WHO, 1984). Insiden penyakit bawaan makanan yang berasal dari rumah sulit untuk ditentukan dengan akurat. Sheard (1993) memperkirakan bahwa rumah menyumbang lebih banyak kejadian penyakit bawaan makanan daripada sumber yang dilaporkan lainnya. Borneff et al. (2001) melaporkan bahwa penyakit akibat makanan yang dikonsumsi di rumah-rumah pribadi adalah tiga kali lebih sering daripada yang timbul dari makanan yang dikonsumsi di kafetaria (Borneff et al., 2001). Jika penyakit bawaan makanan terjadi di rumah, biasanya akan mempengaruhi sejumlah kecil orang dan mungkin tidak terdeteksi dalam pengawasan kesehatan masyarakat. Hanya 23,8% dari mereka yang mengalami penyakit bawaan makanan mencari perawatan medis, sementara 15,5% 'kadang-kadang' melaporkan kepada otoritas kesehatan. Menurut Pusat Pengendalian dan Pencegahan Penyakit (CDC), Atlanta lebih dari seperempat penduduk Amerika menderita keracunan makanan setiap tahun dengan sebagian besar kasus ini tidak pernah dilaporkan kepada pihak berwenang atau didiagnosis dengan baik (Schlosser, 2001). Pusat Epidemiologi Karibia (CAREC) yang bertindak atas nama 21 negara anggota dan Organisasi Kesehatan Pan Amerika diberitahu tentang laporan dan menyusun informasi tentang penyakit yang disebabkan oleh makanan dari berbagai pusat kesehatan masyarakat di Trinidad dan Tobago dan di seluruh Karibia.

Mayoritas konsumen (69%) tidak memberi tahu Departemen Kesehatan Umum tentang produk yang dicurigai atau terkontaminasi atau rusak sementara hanya 8,3% yang 'kadang-kadang' melaporkan standar produk makanan. Dalam sebuah penelitian di Jamaika, mayoritas rumah tangga perkotaan tidak pernah menghubungi Departemen Kesehatan setempat atau Departemen Kesehatan mereka (Knight, 2003). Ketika seorang konsumen merasakan bahwa ada masalah dengan produk apa pun, itu tidak boleh dikonsumsi. Karena itu, penting untuk mempraktekkan 'ketika ragu, buanglah' (FSIS 2002).

2.2 *Praktek mencuci tangan*

Peran tangan dalam penularan penyakit telah ditetapkan (Emery, 1990). Dari penelitian, ditemukan bahwa 88,1% konsumen mencuci tangan dengan sabun dan air sebelum dan sesudah menyiapkan makanan, namun 10,7% konsumen melakukannya 'kadang-kadang'. Sebagian

besar konsumen (92,9%) melaporkan mencuci tangan setelah menggunakan kamar kecil dan 84,5% konsumen setelah menangani makanan mentah, sampah, piring kotor dll. Hasil penelitian menunjukkan bahwa persepsi tentang apa yang merupakan praktik cuci tangan yang aman mungkin jujur tetapi tidak akurat (Redmond et al., 2001). Dalam survei telepon keamanan pangan Nasional Australia, kebanyakan orang (82,3%) mencuci tangan dengan sabun atau deterjen dan 81,6% merasa sangat penting untuk mencuci tangan sebelum dan sesudah menyiapkan makanan (Jay et al., 1999). Dalam video-survei praktik penanganan makanan domestik Australia, terutama hampir setengah (47%) dari orang yang diamati tidak mencuci tangan setelah memegang makanan mentah, atau ketika mereka mencuci, mereka mencuci tanpa sabun (44%). Juga mencuci tangan tidak dilakukan untuk jangka waktu yang lama seperti yang diklaim oleh 22% rumah tangga dan 19% rumah tangga yang mengklaim memiliki sabun di dapur ternyata tidak memilikinya (Jay et al. 1999). Praktik-praktik mencuci tangan yang buruk tak terhindarkan mengarah pada retensi di tangan bakteri dan virus patogen, yang diperoleh dari penanganan produk mentah atau dari kegiatan toilet (Ansari et. Al., 1989; Snelling et al., 1991). Patogen ini kemudian dapat ditransfer ke makanan siap saji langsung ke mulut atau ke anggota rumah tangga lainnya. Menurut Yayasan Pendidikan National Restaurant Association (NRA, 1995), dan Food HACCP.com Newsletter (2002), prosedur mencuci tangan yang benar termasuk tidak hanya air, tetapi penggunaan air hangat dapat dengan nyaman berdiri, membasahi tangan, menyabuni, dan yang terakhir sampai siku, gosok dengan seksama, gunakan sikat untuk kuku, gosok tangan, gunakan gesekan selama 20 detik, bilas bersih dengan air mengalir, dan keringkan tangan , menggunakan handuk atau pengering udara panas.

***2.3** Pembelian makanan*

Untuk menjual makanan kepada publik di Trinidad, operator layanan makanan diharuskan memiliki makanan yang disetujui dikeluarkan oleh Departemen Kesehatan untuk menyatakan kesehatan yang baik. Namun, beberapa konsumen (4,8%) masih membeli makanan dari vendor yang tidak menunjukkan atau tidak memiliki lencana makanan, sementara 35,7% konsumen membeli 'kadang-kadang'. Sebagian besar konsumen (96,4%) merasa bahwa selalu perlu menggunakan penjepit dalam menyajikan makanan sementara sebagian kecil (3,6%) merasa bahwa praktik ini tidak perlu (Tabel 1). Tangan adalah salah satu alat utama untuk kontaminasi silang agen infeksi pada makanan siap saji (Reybrouck 1986; Ansari et al., 1989; Restaino and Wind, 1990; Snelling et al., 1991). Dengan demikian, semua penjamah makanan harus menggunakan penjepit, sendok atau peralatan lainnya untuk mengeluarkan makanan bagi pelanggan (NRA, 2001).

Sebagian besar konsumen (61,9%) memeriksa label makanan selalu untuk 'tanggal kedaluwarsa' atau 'digunakan - sesuai tanggal' saat membeli produk makanan, sementara 33,3% konsumen 'kadang-kadang' akan memeriksa (Tabel 1). Dalam sebuah survei, mahasiswa di Amerika Serikat biasanya membuang makanan yang telah melewati tanggal kedaluwarsa (Unklesbay et al., 1998). Waktu kedaluwarsa dimaksudkan untuk menjaga kualitas dan keamanan produk (NRA, 1995). Menurut FSIS (2002), konsumen harus mencari tanggal kadaluwarsa pada label makanan, tidak pernah membeli makanan yang sudah ketinggalan zaman dan perlu waspada terhadap bau, rasa dan penampilan yang tidak normal dari suatu makanan. Jika, ada keraguan tentang keamanannya, jangan memakannya (FSIS 2002). Mayoritas konsumen (82,1%) memeriksa paket makanan yang rusak, bau busuk dan daging berubah warna sebelum membeli

sementara 16,7% akan memeriksa 'kadang-kadang'. Meskipun, mungkin ada harapan informasi tertentu pada label makanan, ini tidak berarti mayoritas konsumen akan benar-benar menggunakan informasi yang disediakan. Bukti menunjukkan bahwa hanya sejumlah kecil orang yang benar-benar menggunakan informasi nutrisi yang disediakan secara teratur (Jukes, 2000). Namun, peningkatan pengetahuan konsumen tentang diet dan kesehatan, kekhawatiran tentang keamanan makanan dan kesalahan representasi dan akses ke informasi tentang produksi baru dan teknologi pemrosesan telah meningkatkan tekanan untuk informasi label yang lebih besar (MacKenzie, 2001).

***2.4** Pemisahan makanan mentah dan makanan matang*

Makanan mentah yang terkontaminasi atau tidak dimasak dapat menyebabkan mikroorganisme berbahaya diteruskan ke makanan yang aman dan menyebabkan penyakit bawaan makanan (National Assessment Institute1998). Dari survei, sebagian besar konsumen (66,7%) menyimpan makanan yang dimasak, makanan siap makan jauh dari makanan mentah, sementara 16,7% konsumen tidak pernah melakukannya. Ketika ditanya mengapa perlu memisahkan makanan mentah dari makanan siap saji atau makanan yang dimasak, tanggapan berikut diberikan: untuk mencegah kontaminasi silang (31,0%), 'makanan itu' tidak dimasak 'dan' tidak bisa dimakan mentah ' (3,6%), makanan siap saji atau dimasak tidak dapat disimpan lama (2,4%) dan sisanya (1,2%) melaporkan 'tidak sehat, terhadap pelatihan kesehatan masyarakat, untuk menghindari pencampuran bau makanan, bukan praktik yang perlu' dan mudah. Beberapa konsumen (49,8%) tidak memberikan jawaban untuk yang terkait dengan pertanyaan. Tanpa persiapan, 49% responden dalam survei Australia mengetahui arti dari 'kontaminasi silang' (Jay et. Al., 1999). Telah disarankan bahwa hingga 36% dari konsumen Inggris dan hingga 22% konsumen Amerika Serikat tidak mengakui pentingnya menggunakan peralatan terpisah atau yang dibersihkan untuk persiapan makanan siap saji (Redmond dan Griffith, 2003) setelah peralatan telah digunakan dalam persiapan daging mentah dan unggas. Praktek ini dapat menghasilkan potensi perpindahan zat atau penyakit berbahaya - yang menyebabkan mikroorganisme dari satu bahan makanan ke bahan makanan lainnya (NRA, 2001). Produk mentah harus disimpan di tempat yang terpisah dari produk yang dimasak, makanan siap makan untuk mencegah kontaminasi. Peralatan yang sama untuk produk mentah dan dimasak tidak boleh digunakan. Menurut Yayasan Pendidikan National Restaurant Association (NRA, 1995), produk yang dimasak tidak boleh ditempatkan di permukaan kontak makanan di mana produk mentah telah tanpa mencuci, membilas, dan membersihkan area tersebut terlebih dahulu. Bryan (1988) mengemukakan bahwa keterlibatan kontaminasi silang sebagai komponen yang berkontribusi dalam infeksi yang ditularkan melalui makanan telah diremehkan seperti yang terdapat dalam statistik pengawasan.

Tabel 1. Respon Konsumen terhadap makanan yang dibeli

Pertanyaan tentang makanan yang dibeli	% Respon (N = 84)		
	Selalu	Tidak pernah	Kadang-kadang
Apakah Anda membeli makanan dari vendor tanpa lencana kesehatan / makanan yang disetujui?	4,8	59,5	35,7

Apakah Anda pikir perlu bagi vendor untuk menggunakan penjepit saat menyajikan makanan?	96,4	0	3,6
Apakah Anda memeriksa label dan tanggal kadaluwarsa saat membeli produk makanan?	61,9	4,8	33,3
Apakah Anda memeriksa paket makanan yang rusak, bau busuk dan daging yang berubah warna sebelum membeli?	82,1	1,2	16,7

***2.5** Memasak makanan*

Sebagian besar konsumen (96,4%) merasa perlu memasak daging dengan saksama, sedangkan 2,4% tidak sepenuhnya memasak daging. Sebagian kecil (8,3%) dari konsumen selalu menilai tingkat memasak berdasarkan warna saja, sementara 15,5% 'kadang-kadang' menggunakan warna sebagai indikator tingkat kematangan. Meskipun sebagian besar konsumen menggunakan warna untuk mengevaluasi kematangan secara visual (Snelling et al., 1991), masalahnya adalah bahwa beberapa daging sapi kehilangan semua warna merah muda sebelum sepenuhnya matang karena denaturasi metmyoglobin (Warren et al., 1996). Dalam survei Amerika Serikat, 28% konsumen menganggap hamburger berwarna merah muda di dalam masakannya (Nunnery, 1997). Pigmen daging berubah warna karena daging dimasak, maka tidak disarankan warna digunakan untuk menilai kematangan hamburger karena risiko Escherichia coli (Brown, 1999), tetapi lebih untuk mengetahui suhu di dalam daging yang dianggap aman. Konsumen perlu tahu cara memasak makanan untuk keamanan optimal (Jukes, 2002).

Dalam studi ini, sebagian besar konsumen mencuci sayuran mentah mereka (97,6%) atau daging (91,7%) sebelum dimasak atau disajikan. Hanya 2,4% konsumen yang tidak mencuci daging sebelum menyiapkan makanan. Saat memasak buah dan sayuran segar harus dicuci bersih dan bilas dengan air hangat. Sabun atau deterjen lain tidak boleh digunakan. Jika, perlu gunakan sikat kecil untuk menghilangkan kotoran permukaan (FSIS 2002).

***2.6** Pencairan dan pendinginan makanan*

Beberapa konsumen (45,2%) melakukan pelanggaran kritis terhadap pencairan makanan beku pada suhu kamar 30 ° C (86 ° F), sementara 33,3 'terkadang' benar. Hanya 20,2% yang mencairkan makanan di lemari es, atau di bawah air mengalir. Lebih dari setengah responden dalam penelitian Jamaika tidak terbiasa dengan prosedur yang benar untuk pembekuan dan pencairan makanan (Knight, 2003). Ada empat prosedur pencairan yang aman: dalam unit berpendingin pada suhu tidak lebih dari 7 ° C (45 ° F); di bawah air mengalir portabel pada (21 ° C) 70 ° F atau lebih rendah, lalu segera dimasak,; dalam oven microwave hanya ketika makanan akan dimasak segera sesudahnya dan sebagai bagian dari proses memasak biasa (NRA, 1995).

Beberapa konsumen (36,9%) 'terkadang' menyimpan makanan atau

meninggalkan selama beberapa jam (lebih dari 2 jam) pada suhu sekitar 30C (86 ° F) sebelum dikonsumsi, sementara 40,5% konsumen segera mengonsumsi makanan siap saji. Persentase yang signifikan dari konsumen (69%) mendinginkan makanan panas pada suhu kamar, sementara hanya 17,9% 'kadang-kadang' menempatkan makanan dalam wadah untuk didinginkan di lemari es. Dalam survei Amerika Serikat, 45% konsumen meninggalkan makanan secara tidak tepat pada suhu kamar setelah pemanasan (Albrecht, 1995). Dalam survei telepon rumah tangga Australia yang dipilih secara acak, 40% responden mencairkan daging mentah pada suhu kamar, 85% memungkinkan makanan yang dimasak menjadi dingin pada suhu kamar sebelum pendinginan dan 86% melaporkan bahwa mereka akan mendinginkan casserole sisa atau makanan lain dengan daging, ikan atau unggas pada suhu kamar (Jay et al., 1999). Membiarkan makanan menjadi dingin pada suhu kamar sebelum pendinginan memberikan periode waktu yang tidak terkendali di mana makanan dibiarkan dalam zona bahaya suhu 5 ° C (41 ° F) hingga 60 ° C (140 ° F) di mana potensi pertumbuhan mikroorganisme dapat terjadi ((NRA, 2002) Setiap makanan yang tidak didinginkan setelah dimasak atau dipegang dari 45, 5 ° C (140 F) hingga 7 ° C (70 ° F) dalam 2 jam dan hingga (- 9 ° C) 41 ° F dalam tambahan 4 jam untuk total waktu pendinginan kurang dari 6 jam (NRA, 1995). Menurut FSIS (2002), makanan akan terasa lebih enak dan disimpan dengan aman jika konsumen mempraktikkan hal berikut: letakkan makanan panas dalam wadah dangkal, bagilah jumlah besar menjadi bagian-bagian yang lebih kecil, tutup dengan longgar dan dinginkan segera, panaskan kembali dengan saksama ketika siap untuk dimakan.

2.7. Konsumsi telur mentah.

Penelitian ini mengungkapkan bahwa sedikit konsumen (3,6)% makan telur mentah atau mengkonsumsi 'telur mentah' (8,3%). Menurut FSIS (2002), konsumen tidak boleh makan telur mentah atau makanan yang mengandung telur mentah; terutama pada orang yang sangat muda, lanjut usia, atau kekebalan tubuh terganggu (Brown, 1999). Telur adalah tempat berkembang biak yang sangat baik untuk aktivitas mikroba, dan dapat menjadi terkontaminasi secara internal melalui induk ayam dengan infeksi Salmonella enteridis di ovarium atau saluran telurnya (Chen et al., 1996) atau dari menyerap bakteri melalui pori-porinya (Brown, 1999). Listeria monocytogenes, yang dapat tumbuh pada suhu lemari es telah diamati pada telur utuh dan dapat berkontribusi terhadap wabah (Schuman dan Sheldon, 1997). Semua produk telur mentah harus dipasteurisasi (National Assessment Institute, 1998).

3.0 Implikasi dari studi

Secara keseluruhan studi ini menyoroti perlunya pendidikan yang lebih baik bagi konsumen mengenai praktik penanganan makanan yang aman di lingkungan rumahtangga . Beberapa tanggung jawab keamanan pangan ada pada konsumen yang harus menyadari tingkat keamanan yang terkait dengan makanan karena mereka tidak hanya membeli dan menerima produk, tetapi juga menyediakan makanan untuk diri mereka sendiri dan orang lain. Dalam banyak penelitian telah menunjukkan bahwa sebagian besar konsumen mungkin percaya bahwa mereka tahu cara menangani makanan dengan aman, tetapi informasi konsumen tidak selalu benar dan kesalahan penanganan terjadi. Praktik penanganan makanan menjadi perhatian publik, dan diperlukan tindakan untuk mengurangi kemungkinan penyakit bawaan makanan yang berasal dari rumah. Peningkatan perilaku penanganan makanan konsumen cenderung mengurangi risiko dan timbulnya penyakit bawaan makanan. Dalam laporan penilaian kebutuhan untuk keamanan pangan dan infrastruktur di Negara-negara Karibia, ditemukan bahwa kelas penanganan makanan tersedia untuk

industri layanan makanan hanya secara sporadis dan dengan demikian ada kebutuhan untuk kampanye keamanan pangan bagi konsumen untuk mempromosikan makanan yang aman penanganannya (CARICOM dan USDA 2000). Dengan demikian diharapkan bahwa pemerintah dan industri dapat menggunakan informasi yang disajikan untuk menargetkan pendidikan keamanan pangan bagi masyarakat Trinidad.

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Household consumer food safety study in Trinidad, West Indies

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ABSTRACT: There has been minimal research on consumer food safety knowledge, perception and food handling practices at homes in Trinidad, West Indies. Questions were asked on the demographic characteristics of 84 respondents, reporting of food - borne illness, hand washing practices, purchase of foods, separation of raw and cooked foods, cooking of foods, thawing and cooling of foods and consumption of raw eggs. The study found 52.4% of consumers had experienced some form of food- borne illness with main symptoms of vomiting and diarrhea (48.8%). Of those who had experienced food borne illness, only 23.8% sought medical treatment. If a food was found to be tampered or contaminated, most consumers (69.0%) failed to report to the relevant authorities. Most respondents washed their hands with soap and water before preparation of meals (88.1%), after using the toilet facilities 92.9% and after handling raw foods or contaminated objects (84.5%). The minority of respondents (4.8%) purchased foods from vendors who did not display food badges, while some (35.7%) 'sometimes' bought foods. When consumers were asked whether they looked at food labels and expiry dates before purchase of foods, 61.9% responded in the affirmative, while 33.3% indicated 'sometimes' Some (16.7%) consumers did not separate cooked or ready to eat foods from raw foods. Most consumers washed vegetables (97.6%) and meat (91.7%) before serving or cooking. Some consumers (45.2%) thawed frozen foods at room temperature, while others (33.3%) did so 'sometimes'. Although the study was of limited sample size, it emphasized the need for public food safety education to consumers.
Key words: Trinidad, West Indies, consumers, food safety knowledge, food handling practices, public education

INTRODUCTION

Ask someone about food - borne disease and the initial response will be reflection on a personal experience. Most will recount some dramatic episode in which they ate 'the incriminated item' and before they knew it they were feeling ill. The Center for Disease Control and Prevention, Atlanta has estimated that about one-third of the inhabitants in the United States acquire a food borne disease annually (Griffiths, 2002). Every day in the United States, roughly 200,000 people are sickened by a food-borne disease, 900 are hospitalized and 14 die (Schlosser 2001) The Caribbean Epidemiology Centre (CAREC, 2002) reported that there were 2597 reported cases of food-borne illness in 2000 and 1905 cases in 2001 (as up to 8th February, 2002) for CAREC member countries. While adequate, nutritious and safe food is essential to human survival, food can also cause or convey risks to health and even life itself. International concern about consumer food safety knowledge has prompted considerable research to evaluate domestic food-handling practices (Redmond and Griffith, 2003).

International studies (Bryan 1988; Scott *et al.*, 1982, Scott, 1996) indicate that a significant proportion of foodborne illness arises from practices in the home kitchen. In Europe, the home was one of the most frequent places of acquiring foodborne illness (WHO, 1992). Epidemiological studies have indicated that sporadic cases or small outbreaks in homes account for the majority of food poisoning incidents (Worsfold and Griffith, 1997). With a population of about 1.26 million in Trinidad and Tobago, (Tradeport, 2003), there has been little research on food safety issues of consumers. Trinidad has a well - established and growing middle class who will continue to demand ready and convenience foods. As in other modern societies, many women work outside the home and thus there are increasing demands on homemaker's time (Trinidad and Tobago: Food Market Reports 1996). A considerable amount of food preparation and handling occurs in the domestic environment, so research and consumer education regarding the risk of unsafe food-handling practices is an essential element of the prevention of foodborne disease (Kaferstein, 1997). People's behavior at home is probably a good reflection of their knowledge or at least what they believe is important (Daniels, 1998).

Thee has very little published information on food safety handling practices by the Trinidadian and Tobagonian consumers. The data provided in this study would reflect food safety knowledge, perception to food safety and how foods are handled at home by consumers in Trinidad, West Indies

1.0 METHODOLOGY

1.1 Demographics of consumers

The questionnaire was self-administered to randomly chosen houshold consumers in Port-of-Spain (North- West), Arima (North- East), and St. Augustine (East) Trinidad, West Indies between October to November, 2002. The sample size comprised of 84 willing respondents, (39. 9% male and 63.1% female) who were between 18 - 63 yrs (16-24 yrs - 45.3%; 25-34 yrs - 32.3%; 35-44 yrs - 11.6%; 45-54% - 9.6 % and 55-64 % - 1.2 %). The questionnaire was pre- tested by 10 consumers to identify the wording and sequencing of the questions, administration and length of interview. In a review of consumer food safety studies, self - administered questionnaires have been used to reach 62 to 824 respondents (Redmond and Griffith, 2003). In this study, a household consumer was defined as person who was over 16 yrs of age, who purchased and prepared foods regularly at home and had accessed to a refrigerator in the kitchen In this study, the respondents were single (69%), married (25%), divorced (2.4%), in a common law relationship (2.4%) or other (1.2%). Their religion affiliations were as : 39.3% Roman Catholic, 21.4% Hindu, 8.3%, 4.8% Anglican, 3.6% Seven Days Adventist, 3.6% Islam, 3.6% Presbyterian, 2.4% Pentecostal, 1.2% Spiritual Baptist and 11.9% not given/other/none.

1.2 Questionnaire design

The questionnaire consisted of 18 checklist questions on demographic characteristics (sex, age, marital status, religion) of respondents, reporting of foodborne illness, hand - washing practices, purchase of food, separation of raw food from raw or ready-to-eat foods, cooking practices, thawing and cooling of foods and consumption of raw eggs. In many studies have shown that self-reported practices do not correspond to observed food safety behaviors (Redmond and Griffith, 2003). The responses to the questions were categorized as either always, sometimes or never. A blank section was left in the questionnaire to allow the respondent to write his or her comments relevant to the questions. All data were managed in a spreadsheet (EXCEL 97, Microsoft) Responses were reported in percentages.

2.0 RESULTS & DISCUSSION

2.1 Reporting of foodborne illness

Illness resulting from foodborne disease is defined as 'a disease of an infectious or toxic nature caused by or thought to be caused by the consumption of food or water' (Tirado and Schmidt, 2000). An alarming 52.5% of consumers had experienced some form of perceived foodborne illness, with 48.8 % had symptoms of vomiting and diarrhea, 36.9% blurred vision, nausea and abdominal pain, 20.2% chill and fever, 19% encountered headaches and 1.2 % included other e.g dizziness. Foodborne disease is widely recognized from the acute effects on the gastrointestinal tract, but also includes other symptoms throughout the body (Arthur 2002). Common symptoms of foodborne illnesses are diarrhea, abdominal cramping, fever, headache, vomiting, severe exhaustion and sometimes blood or pus in stools (FSIS 2002).T he true incidence of foodborne disease is difficult to ascertain because cases of illness are underreported (Lake *et al*., 2000). It is believed that in industrialized countries less than 10% of the cases are reported, while in developing countries reported cases account for less than 1 % of the total (WHO, 1984). The incidence of foodborne illness that is home derived is difficult to determine with any accuracy. Sheard (1993) estimated that homes accounted for a greater number of foodborne illness events than other reported sources. Borneff *et al*. (2001) reported that illness from foods consumed in private homes is three times more frequent than that arising from foods consumed in cafeterias (Borneff *et al*., 2001). If foodborne illness occurred in the home, it would usually affect a small number of people and may not be detected in the public health surveillance. Only 23.8% of those who experienced foodborne illness sought medical treatment, while 15.5% reported to the health authority 'sometimes'. According to the Center for Disease Control and Prevention (CDC), Atlanta more than a quarter of the American population suffers a bout of food poisoning each year with most of these cases never been reported to authorities or properly diagnosed (Schlosser, 2001). The Caribbean Epidemiology Center (CAREC) acting on behalf of 21 member countries and the Pan American Health Organization is notified on reports and collates information on food-borne illnesses from the various public health centers in Trinidad and Tobago and throughout the Caribbean.

The majority of consumers (69%) did not notify any Public Health Department of a suspected or contaminated or tampered product while only

8.3% reported on the default food product 'sometimes'. In a study in Jamaica, the majority of urban householders had never contacted their local Health Department or the Ministry of Health (Knight, 2003). When a consumer sense that there is a problem with any product, it should not be consumed. Therefore, it is important to practice 'when in doubt, throw it out' (FSIS 2002).

2.2 Hand washing practices

The role of hands in transmission of disease has been established (Emery, 1990). From the study, it was found that 88.1% of consumers washed their hands thoroughly with soap and water before and after preparing meals, however 10.7% of consumers did so 'sometimes.' Most consumers (92.9%) reported of washing their hands after using the restroom and 84.5% consumers after handling raw foods, garbage, dirty dishes etc. Study results show that perceptions of what constitute safe hand-washing practices may be honest but inaccurate (Redmond *et al*., 2001). In a National Australian food safety telephone survey, most people (82.3 %) washed their hands with soap or detergents and 81.6 % felt it was very important to wash hands before and after preparing meals (Jay *et al.*, 1999). In a video-survey of Australian domestic food handling practices, notably almost one-half (47%) of the persons observed did not wash their hands after handling raw meals, or when they did wash, they washed without soap (44%). Also hand washing was not performed for a long time period as was claimed by 22% of the household and 19% of households that claimed to have soap available in the kitchen did not have it available (Jay et al. 1999). Poor hand washing practices inevitably lead to retention on the hands of bacterial and viral pathogens, which are obtained from handling raw produce or from toilet activities (Ansari *et. al*., 1989; Snelling *et al*., 1991). These pathogens may then be transferred to prepared ready-to-eat foods directly to the mouth or to other household members. According to the Educational Foundation of the National Restaurant Association (NRA,1995), and Food HACCP.com Newsletter (2002), proper hand washing procedures include not only water, but the use of water as hot as the hands can comfortably stand, moisten hands, soap thoroughly, and latter to elbow, scrub thoroughly, use brush for nails, rub hands together, using friction for 20 seconds, rinse thoroughly under running water, and dry hands, using single service towels or hot air dryer.

2.3 Purchase of foods

To sell food to the public in Trinidad, food service operators are required to have approved food badges issued by the Ministry of Health to certify good health. However, a few consumers (4.8%) still purchased foods from vendors who did not display or had no food badges, while 35.7% of the consumers bought 'sometimes'. Most consumers (96.4%) felt that it was always necessary to use tongs in serving foods while a minority (3.6%) felt that this practice was unnecessary (Table 1). Hands are one of the principle vehicle for cross-contamination of infection agents onto ready-to-eat foods (Reybrouck 1986; Ansari *et al*., 1989; Restaino and Wind, 1990; Snelling *et al*., 1991). Thus, all food handlers should use tongs, scoops or other utensils to dispense food for customers (NRA, 2001).

Most consumers (61.9%) checked food labels always for 'expiry date' or 'use - by- date' when purchasing food products, while 33.3% of consumers 'sometimes' would check (Table 1). In a survey, college students in the United States usually discard foods that have passed the expiration date (Unklesbay *et al*., 1998). Expiration times are meant to maintain product quality and safety (NRA, 1995). According to FSIS (2002), consumers should look for expiration dates on food labels, never buy outdated food and need to be alert to abnormal odor, taste and appearance of a food item. If, there is any doubt about its safety, do not eat it (FSIS 2002). The majority of consumers (82.1%) checked for damaged food packages, foul odors and discolored meat prior to purchase while 16.7% would check 'sometimes' do. Although, there may be an expectation of certain information on food labels, this does not mean the majority of consumers will actually use the information that is provided. Evidence suggests that only a limited number of people actually make regular use of the nutrition information which is provided (Jukes, 2000). However, consumers' increased knowledge about diet and health, concern about food safety and misrepresentation and access to information about new production and processing technologies have increased the pressure for greater label information (MacKenzie, 2001).

2.4 Separation of raw and cooked foods

Contaminated or uncooked raw foods can cause harmful microorganisms to be passed to safe foods and cause a foodborne illness (National Assessment Institute1998). From the survey most consumers (66.7%) stored cooked, ready to eat foods away from raw food always, while a disturbing 16.7% of consumers 'never did. When asked why was it necessary to separate raw food from ready to eat or cooked foods, the following responses were given: to prevent cross contamination (31.0%), 'the food was 'not cooked' and 'could not have been eaten raw ' (3.6 %), ready to eat or cooked foods

cannot be stored long (2.4 %) and the rest (1.2%) reported 'it was unhealthy, against public health training, to avoid mixing of odors of foods, not a necessary practice' and was easy. Some consumers (49.8 %) provided no answers to the related Unprompted, 49% of respondents in an Australian survey knew the meaning of the term 'cross-contamination' (Jay et. al., 1999). It has been suggested that up to 36% of United Kingdom consumers and up to 22% of United states consumers did not recognize the importance of using separate or adequately cleaned utensils for the preparation of ready-to-eat foods (Redmond and Griffith, 2003) after the utensils have been used in the preparation of raw meat and poultry. This practice could result in the potential transfer of harmful substances or disease - causing microorganisms from one food or food ingredient to another (NRA, 2001). Raw products should be kept in separate areas from cooked, ready to eat products to prevent contamination. The same utensils for raw and cooked products should never be used. According to the Educational Foundation of the National Restaurant Association (NRA,1995), a cooked product should never be placed on a food contact surface where a raw product has been without first washing, rinsing and sanitizing that area. Bryan (1988) suggested that the involvement of cross-contamination as a contributing component in food-borne infection has been underestimated in surveillance statistics.

Table 1: Consumer responses to purchase of foods

Questions about purchase of foods	% Response (N=84)		
	Always	**Never**	**Sometimes**
Do you purchase food from vendors without approved health/ food badges?	4.8	59.5	35.7
Do you think it is necessary for vendors to use tongs when serving foods?	96.4	0	3.6
Do you check for labels and expiry dates when purchasing food products?	61.9	4.8	33.3
Do you check for damaged food packages, foul odors and discolored meat prior to purchase?	82.1	1.2	16.7

2.5 Cooking of foods

Most consumers (96.4%) felt it was necessary to cook meat thoroughly, while 2.4% did not fully cook meats. A minority (8.3%) of consumers always judged the degree of cookness by color only, while 15.5% used color an indicator of the degree of cook-ness 'sometimes'. Although most consumers use color to visually evaluate the doneness as the meat is cooked, hence it is not recommended that color be used to judge the doneness of hamburgers because of the risk of *Escherichia coli* (Brown, 1999), but rather to know the temperature inside the meat to be considered safe. Consumers need to know how to cook foods for optimal safety (Jukes, 2002).

In this study, most consumes washed their raw vegetables (97.6%) or meats (91.7%) before cooking or serving. Only 2.4 % of consumers failed to wash meats before preparation of meals. When cooking fresh fruits and vegetables must be washed thoroughly and rinse in warm water. Soap or other detergents should not be used. If, necessary and appropriate, a small brush to remove surface dirt (FSIS 2002).

2.6 Thawing and cooling of foods

of ground patties (Snelling *et al*., 1991), the problem is that some ground beef loses all pink color before it is fully cooked due to the denaturation of metmyoglobin (Warren *et al*., 1996). In United States surveys, 28% of consumers considered a hamburger that was pink inside cooked (Nunnery, 1997). Meat pigments change color

Some consumers (45.2 %) committed a critical violation of thawing frozen foods at room temperature 30°C (86 °F) , while 33.3% 'sometimes' did. Only 20.2 % allowed the foods to be thawed in a refrigerator, or under running water. More than one-half of the respondents in a Jamaican study were unfamiliar with the correct procedure for freezing and thawing of foods (Knight, 2003). There are four safe thawing procedures: in refrigerated units at temperatures of no more than 7 °C (45°F); under portable running water at (21°C) 70°F or below, followed immediately by cooking,; in a microwave oven only when food will be cooked immediately afterwards and as part of the regular cooking process (NRA, 1995).

Some consumers (36.9%) would 'sometimes' store foods or left - overs for several hours (more

than 2 hrs) at ambient temperature 30C (86°F) before consumption, while 40.5% of consumers ate the prepared foods almost immediately. A significant percentage of consumers (69%) allowed hot foods to be cooled at ambient temperature, while only 17.9 % placed foods 'sometimes' in shallow containers to be cooled in the refrigerator. In a United States survey, 45% of consumer inappropriately left foods at room temperature after heating (Albrecht,1995). In a randomly selected Australian household telephone survey, 40 % of the respondents thawed raw meat at room temperature, 85% allowed cooked foods to cool at room temperature before refrigerating and 86% reported that they would cool leftover casserole or other food with meat, fish or poultry at room temperature (Jay *et al*., 1999). Leaving food to cool at room temperature before refrigeration provides an uncontrolled time period where food is left in the temperature danger zone 5°C (41 °F) to 60°C (140°F) in which potential growth of microorganisms may occur ((NRA, 2002). Any food that is not cooled after cooking or hot holding from 45 .5 °C (140 F) to 7°C (70 °F) in 2 hr and to (- 9 °C) 41 °F in an additional 4 hr for a total of less than 6 hr cooling time (NRA, 1995). According to FSIS (2002), food will taste better and be safely stored if consumers practice the following: place hot food in a shallow container, divide large quantities into smaller portions, cover loosely and refrigerate immediately, reheat thoroughly when ready to eat. Large bulk slows down cooling and permits prolonged bacterial growth (Daniels, 1998).

2.7 Consumption of raw eggs

The study revealed that few consumers (3.6) % ate raw eggs or consumed raw eggs 'sometimes' (8.3%). According to FSIS (2002), consumers should never eat raw eggs or foods that contain them.; this is especially the case for the very young, elderly, or immune - compromised (Brown, 1999). Eggs are an excellent breeding ground for microbial activity, and can become internally contaminated through a hen with *Salmonella enteridis* infection in her ovary or oviduct (Chen *et al.*, 1996) or from absorbing bacteria through its pores (Brown, 1999). *Listeria monocytogenes*, *which* can grow at refrigerator temperatures has been observed on whole eggs and may contribute to outbreaks (Schuman and Sheldon, 1997). All raw egg products should be pasteurized (National Assessment Institute, 1998).

3.0 Implications of the study

Overall the study highlighted the need for greater consumer education regarding safe food handling practices in the domestic environment. Multiple food safety responsibilities lie with the consumers who must be cognizant of the level of safety associated with the foods as they not only purchase and receive products, but also provide foods for themselves and others. In many studies have shown that most consumers may believe they know how to handle food safely, but consumer information is not always correct and mishandling occurs. Food handling practices are of public concern, and action is required to reduce the likelihood of home-derived foodborne illness. An improvement in consumer food - handling behavior is likely to reduce the risk and incidence of foodborne disease. In a report on needs assessment for food safety and infrastructure in Caribbean Countries, it was found that food handler classes were available to the food service industry only on a sporadic basis and thus there was the need for food safety campaigns for consumers to promote safe food handling (CARICOM and USDA 2000). Thus it is hoped that government and industry could use the information presented to target food safety education for the Trinidadian public.

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